CENTER FOR BUSINESS RESEARCH

Valley Inflation Returns to Lower Rate in Third Quarter

Inflation in the Phoenix metropolitan area moderated further during the third quarter, to 0.7 percent, seasonally adjusted. Following 2.1 and 1.1 percent gains during the first two quarters of 1987, the third quarter advance returned to the range experienced between third quarter 1985 and fourth quarter 1986.

Before seasonal adjustment, the Metropolitan Phoenix Consumer Price Index rose 0.5 percent, to 201.7 (1977 = 100). The index was 4.1 percent higher than during third quarter 1986, approximately the same annual increase measured at the end of the second quarter.

COMPONENT INDEXES

Most of the major CPI categories contributed roughly the same amount to third quarter inflation. Those categories of greatest relative importance – transportation, housing, and food and beverages – experienced little inflation; the annual gains in the latter two categories were less than 1.5 percent. The lesser-weighted major categories – apparel and upkeep, entertainment, and other goods and services – registered higher inflation rates.

Medical care was the exception among the major categories, declining for the first time on record. However, the reduction was a one-time phenomenon caused by decreases in health insurance rates.

Food and Beverages

Leading the increase in the food-and-beverage category was food-at-home prices. The index for the cereals and bakery products category advanced more than it had since fourth quarter 1984; the gain in the fruits and vegetables index also was relatively large. Despite another decline in poultry prices, which were 17 percent less than in

See "CPI," page 2

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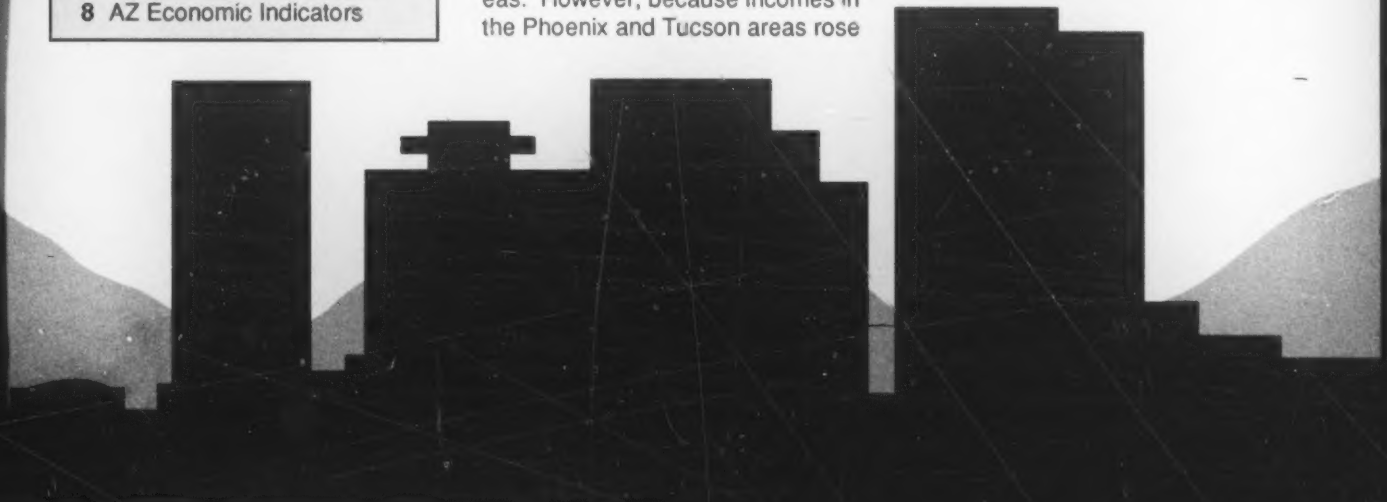
Living Standard Still Subpar in Metro Areas

In Arizona's metropolitan areas, the standard of living – a comparison of the cost of living to income levels – remained below comparative norms during 1986. Even though living costs in the Phoenix and Tucson areas approximated those for metropolitan areas of their sizes, median household incomes were less than in comparative areas. However, because incomes in the Phoenix and Tucson areas rose more rapidly than the national average in 1986, living standard comparisons are not quite as unfavorable as in earlier years.

National patterns in cost of living, incomes and living standards were much the same during 1986 as in earlier years.

See "Living Standard," page 4



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third quarter 1986, the index for meats, poultry, fish and eggs rose moderately. However, slight decreases occurred for the third time in the last four quarters in both the home categories.

CPI Revision

In January, the U.S. Department of Labor initiated methodological changes in the consumer price indexes. These changes will not be fully implemented in the Metropolitan Phoenix Consumer Price Index until first quarter 1988. The Center for Business Research began updating its methodology after receiving detailed information from the federal government in the spring. During the third quarter, the Center collected prices for a variety of new items, many priced in outlets that did not previously provide prices for the CPI. Both methodologies – old and new – will be used simultaneously during the fourth quarter, giving a point of comparison, but the official CPI will be calculated with the old methodology.

The new methodology involves changes to numerous subcategories of the CPI, with many of the existing categories combined and new ones added. Other changes include use of categorical relative importance weights specific to the Phoenix area (previously, regional figures were used), rebasing of the indexes from 1977 = 100 to 1982-84 = 100, and various procedural enhancements. Due to the rebasing, the Phoenix CPI will be directly comparable, for the first time, to indexes produced by the federal government; the latter will be rebased beginning in January 1988.

Previously published indexes will be affected only by the changes to the base period. Even then, the percent changes calculated from the indexes will not be altered. Further, indexes generated using the new methodology will be directly linked to the historical series, precluding discontinuities.

Housing

Housing costs continued to advance modestly in the third quarter (see Table 1). Despite a gain for the quarter, shelter costs were only 0.7 percent higher than in third quarter 1986 (see Table 2). Apartment rents declined for the fourth straight quarter, cumulating to more than 3 percent, as persistently high vacancy rates continued. Homeowners' costs again rose modestly.

The index for fuel and other utility costs advanced moderately, with comparable gains in most subcategories. Prices of household furnishings and operations declined; in several subcategories, such as furniture, prices were lower than they were one year earlier.

Transportation

After large gains in the first two quarters of 1987, transportation costs rose modestly in the third quarter. A decrease in used car prices, offsetting a surge in the second quarter, helped to slow the overall transportation gain. Prices of vehicle parts and equipment and public transportation also fell, but vehicle insurance premiums again rose substantially. Vehicle finance charges went up for the first time since second quarter 1985.

Gasoline prices, largely responsible for swings in the inflation rate since 1985, increased modestly (though they were down prior to

24 percent higher than in third quarter 1986.

Medical Care

As in previous quarters, the CPI reflected moderate inflation in most of the medical care subcategories: prescription drugs, non-prescription drugs and supplies, professional services, and hospital services. However, the large decrease in health insurance premiums negated these increases.

Other Categories

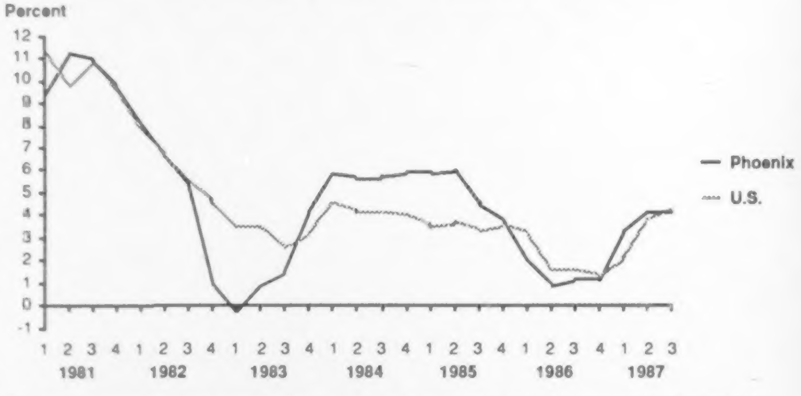
Prices of other goods and services jumped 2.9 percent, the most since before 1984. Much of the gain resulted from personal care price increases. Entertainment costs rose a relatively large 2 percent, while apparel prices continued to fluctuate, climbing nearly 3 percent.

COMPARISON AREAS

Third quarter inflation in the Phoenix area was-less than one-half the national rate. Metropolitan Phoenix recorded much lower rates in the housing, transportation, and medical care categories (see Table 3).

The area's inflation since third quarter 1986 was close to the national average, with substantially lower rates in the categories of housing, medical care, and food and beverages. However, transportation costs rose much more in the Phoenix area than nationally.

FIGURE I
METROPOLITAN PHOENIX AND UNITED STATES CPI
Percent Change from Same Quarter, Prior Year



Source: Center for Business Research, College of Business, Arizona State University, in cosponsorship with Valley National Bank.

Phoenix generally has been comparable to the national rate since late 1985 (see Figure 1). This relationship has not always held, as similar rates during 1981 and most of 1982 gave way to lower inflation in Phoenix for one year. The situation was reversed between late 1983 and late 1985.

Generally, inflation is higher in the Phoenix area during economic expansions, when heavy net in-migration exerts demand pressures, particularly on housing, the supply of which may be slow to respond. During recessions and transition periods, when net in-migration to Phoenix is muted, local inflation is equal to, or less than, the national average.

Comparable rates since late 1985, despite the continuing economic expansion, probably result from two factors. First, housing vacancy rates are high, holding down housing costs. Second, a relatively slow local economy in late 1986 and early 1987 resulted in a reduced in-migration flow.

OUTLOOK

Little evidence of noticeably higher inflation is obvious, either nationally or locally. With high vacancy rates and a less-than-robust local economy likely to persist into 1988, the Phoenix area's inflation rate should remain comparable to the national rate, each staying in the 4-to-5-percent range.

– **Tom R. Rex**
Research Manager

Metro Phoenix CPI

The Metropolitan Phoenix Consumer Price Index (CPI), on which these inflation figures are based, is prepared by the Center for Business Research in the ASU College of Business. The Center conducts comprehensive pricing surveys each quarter, in cosponsorship with Valley National Bank. For more information on the CPI, call the Center at (602) 965-3961.

TABLE 1
PERCENT CHANGES IN METROPOLITAN PHOENIX CONSUMER PRICE INDEX

		Seasonally Adjusted from Preceding Quarter						
Expenditure Category	*Relative Importance*	*1st 1986*	*2nd 1986*	*3rd 1986*	*4th 1986*	*1st 1987*	*2nd 1987*	*3rd 1987*
ALL ITEMS	100.0	-0.2	0.4	0.6	0.5	2.1	1.1	0.7
Food and Beverages	18.7	0.5	1.0	2.3	0.1	-0.2	0.5	0.9
Housing	39.5	0.7	0.2	1.0	0.4	0.5	0.2	0.5
Apparel and Upkeep	4.8	-3.3	5.6	-2.5	1.9	-2.5	2.8	2.7
Transportation	21.2	-2.5	-1.9	-1.1	-0.2	8.1	3.0	0.9
Medical Care	6.9	1.3	1.7	0.2	1.2	1.8	2.7	-2.1
Entertainment	4.6	-1.7	2.4	-0.6	4.5	2.4	-1.2	2.0
Other Goods and Services	4.3	1.7	0.7	2.1	0.6	2.0	0.3	2.9

TABLE 2
METROPOLITAN PHOENIX CONSUMER PRICE INDEX
Third Quarter 1987

	Index (1977 = 100)		Percent Change from	
Expenditure Category	*Last Quarter*	*This Quarter*	*Last Quarter **	*Year-Ago Quarter*
ALL ITEMS	200.7	201.7	0.7	4.1
Food and Beverages	182.2	183.0	0.9	1.1
Food	182.3	183.2	1.0	1.0
Food at Home	181.5	183.0	1.2	2.1
Cereal and Bakery Products	203.7	205.9	2.2	4.4
Meats, Poultry, Fish, and Eggs	165.1	168.0	1.4	0.9
Dairy Products	168.2	166.8	-0.2	0.2
Fruits and Vegetables	198.0	202.0	3.2	5.6
Other Food at Home	172.4	172.0	-0.1	0.7
Food Away from Home	180.9	180.8	0.6	-1.1
Housing	206.2	208.0	0.5	1.4
Shelter	222.4	224.1	0.5	0.7
Renters' Costs**	116.8	116.6	-0.7	-3.1
Homeowners' Costs**	113.7	114.5	0.7	2.3
Fuel and Other Utilities	176.9	180.7	1.2	4.2
Gas (piped) and Electricity	195.0	201.1	1.2	4.3
Household Furnishings/Operations	155.3	155.6	-0.5	1.4
Apparel and Upkeep	150.8	151.4	2.7	3.1
Transportation	196.0	195.9	0.9	11.3
Private Transportation	193.6	193.4	1.2	12.0
New and Used Cars	208.5	204.6	-2.5	5.9
Motor Fuels	169.9	166.6	3.4	24.3
Public Transportation	235.0	235.7	-2.8	3.1
Medical Care	284.1	278.1	-2.1	3.1
Entertainment	204.7	206.8	2.0	6.4
Other Goods and Services	186.9	193.3	2.9	6.4

*Seasonally adjusted **Base period is second quarter 1983.

TABLE 3
METROPOLITAN PHOENIX AND UNITED STATES CONSUMER PRICE INDEXES
Third Quarter 1987

	Percent Change from Last Quarter*		Percent Change from One Year Ago	
Expenditure Category	*Phoenix*	*United States*	*Phoenix*	*United States*
ALL ITEMS	0.5	1.2	4.1	4.3
Food and Beverages	0.5	0.4	1.1	3.4
Housing	0.9	1.6	1.4	3.5
Apparel and Upkeep	0.4	-1.5	3.1	3.7
Transportation	-0.1	1.8	11.3	6.3
Medical Care	-2.1	1.6	3.1	6.5
Entertainment	1.0	0.7	6.4	3.4
Other Goods and Services	3.4	1.3	6.4	5.8

*Not seasonally adjusted

Source (Tables 1, 2 and 3): Metropolitan Phoenix data compiled by the Center for Business Research, College of Business, Arizona State University, in cosponsorship with Valley National Bank; other data in Table 3 are from the U.S. Department of Labor, Bureau of Labor Statistics.

This article updates information presented in the November 1985 and March 1987 issues of *Arizona Business.*

COST OF LIVING

Living costs vary widely across the nation. The cost of living is highest along the East and West coasts and lowest in the Southeast and Northern Plains. In the Mountain region, which includes Arizona, the median cost of living nearly matches the national median (see Table 1). These conclusions are based on information from a quarterly study conducted by the American Chamber of Commerce Researchers Association (ACCRA). Approximately 250 towns and cities nationwide participate in the study.

Cost of living correlates closely to the population of an area, with enjoying significantly lower living costs and urban areas with more than one million residents experiencing significantly higher costs than the national average. Living costs also correlate with area income levels.

TABLE 1
MEDIAN LIVING COST INDEXES
By Geographic Area, Population of Urbanized Area, and Income
(National Median = 100)

Area	Index
New England	108
Middle Atlantic	103*
South Atlantic	98
East South-Central	94*
West South-Central	99
East North-Central	98
West North-Central	95*
Mountain	99
Pacific	105*
Population	
Less than 25,000	96*
25,000-74,999	96*
75,000-124,999	98
125,000-199,999	99
200,000-399,999	99
400,000-999,999	100
1 million or more	108*
Income	
Less than $21,000	96*
$21,000-$23,499	98
$23,500-$25,999	99
$26,000 or more	102*

*Statistically significant difference from the national average.

Source: Center for Business Research, College of Business, Arizona State University, based on 1980 Census population figures, 1986 *Sales and Marketing Management* household disposable income figures, and 1986 data of the American Chamber of Commerce Researchers Association (ACCRA).

INCOME LEVELS

Income levels vary geographically, but the pattern does not exactly match that of the cost of living. Significantly lower incomes are found in the Southeast, while the Middle Atlantic and Great Lakes regions enjoy significantly higher incomes (see Table 2). The median income in the Mountain region approximates the national average. These findings are based on the "effective buying income" – similar to household disposable income – reported in *Sales and Marketing Management.*

Incomes correlate to population in nearly a straight-line relationship, with the lowest incomes in towns of fewer than 25,000 residents and the highest incomes in urban areas of more than one million people. Only the income of the largest population class varies significantly from the national average.

One measure of the standard of living is derived by adjusting income levels for the cost of living – the simple division of an area's income by its cost-of-living index. The adjusted income figures should vary little by city size or by region if income levels adequately compensate for differences in cost of living.

The adjustment does reduce the variation in income by city size. The median adjusted income is not significantly different from the national average in any city-size class, though the figures are lower in areas with a small population.

Regional differences, however, remain significant. The Southeast's *adjusted* income, while higher than the region's income figure, is significantly less than the national average. After adjustment, the Great Lakes region's income is even higher. Because of heavy out-migration of people from this region, a high standard of living may be a necessary labor market adjustment to retain and attract people.

PHOENIX AND TUCSON

Because the Phoenix metropolitan area's population is approximately

TABLE 2
MEDIAN HOUSEHOLD INCOME WITH AND WITHOUT COST-OF-LIVING ADJUSTMENT

Geographic Area	Income	Adjusted Income
New England	$24,725	$22,450
Middle Atlantic	25,700*	24,350
South Atlantic	22,700	23,050
East South-Central	20,400*	21,500*
West South-Central	21,575	22,475
East North-Central	24,925*	25,650*
West North-Central	22,975	23,175
Mountain	23,725	24,175
Pacific	23,475	22,050
Population of Urbanized Area		
Less than 25,000	$20,925	$21,300
25,000-74,999	21,975	22,650
75,000-124,999	22,450	22,500
125,000-199,999	24,550	24,525
200,000-399,999	24,525	24,225
400,000-999,999	25,075	24,400
1 million or more	27,775*	25,775
NATIONAL AVERAGE	$23,450	$23,550

*Statistically significant difference from the national average.

Source: Center for Business Research, College of Business, Arizona State University, based on 1986 *Sales and Marketing Management* household disposable income figures and 1986 ACCRA cost-of-living figures.

triple that of the Tucson metropolitan area, differences in income levels and cost of living are expected between the two areas.

Cost of Living

Living costs in Tucson nearly matched the national average, while those in Phoenix generally were 5 to 8 percent higher. Most of the difference could be traced to the housing and utilities categories. Housing costs – approximately 10 percent higher in Phoenix than in Tucson – varied more nationwide by population size of an area than other costs.

Grocery costs are approximately the same in Phoenix and Tucson, and both are close to the national average. Costs of miscellaneous goods and services also are nearly equivalent, exceeding the national average by 5 percent. Transportation and health care costs are higher in Phoenix, with the costs in both metropolitan areas greater than the national average.

Living costs vary even within a metropolitan area. Scottsdale participated in the ACCRA study for the first time in 1986; its cost of living measured 13 percent higher than that for the city of Phoenix. Housing and utility costs again accounted for most of the difference. However, grocery and miscellaneous costs also were greater in Scottsdale than in Phoenix.

Incomes and Living Standards

The 1986 median household effective buying income in the Phoenix metropolitan area ($25,673) was 22 percent higher than in the Tucson area, a larger discrepancy than would be expected from the difference in population size. As a result of slightly greater living costs but much better incomes, households in the Phoenix area enjoy a standard of living approximately 15 percent higher than that of the Tucson area.

Income levels also vary within a metropolitan area. For example, the median income ($25,165) of the city of Phoenix was slightly less than the metrowide figure, while Scottsdale's income level was 25 percent higher. Thus, even though living costs are much greater in Scottsdale than in Phoenix, living standards are superior in Scottsdale.

Comparison to Other Areas

Income growth during 1986 in Arizona's metropolitan areas was greater than in most of the nation's metropolitan areas, raising the comparative standards of living. However, because income levels remained relatively low, the standard of living in the Phoenix area still was below that expected of an urban area of nearly two million people. It was barely higher than the medians of the Mountain region and the nation. In Tucson, the standard of living was 10 to 15 percent less than that of each comparative area, due to the Tucson area's very low median household income.

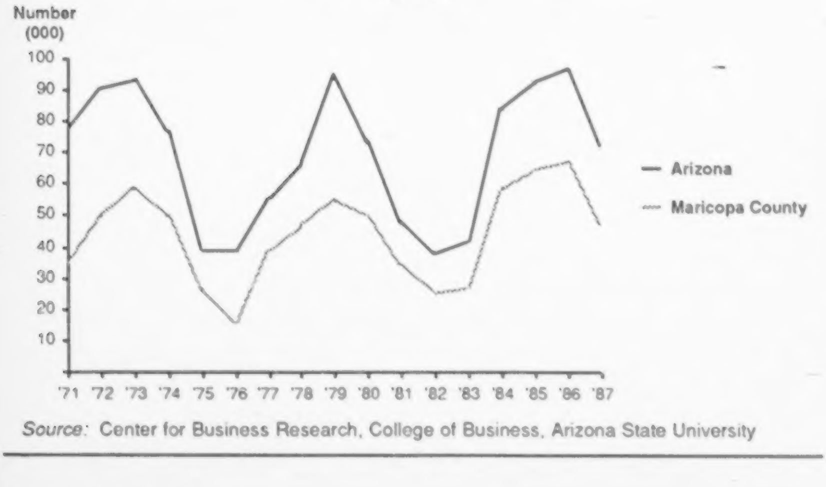
– Tom R. Rex
Research Manager

Migration to Arizona and Metro Phoenix Falters in Second Quarter

The net number of in-migrants to the Phoenix metropolitan area and to the rest of Arizona dropped sharply during second quarter 1987. After peaking in mid-1985 at 19,000 people per quarter, net in-migration to Maricopa County gradually declined to 12,000 by first quarter 1987. The number dropped by half, to 6,000, in the second quarter, which represents the weakest inflow since the 1981-82 recession.

For the entire fiscal year 1986-87 (ending June 30, 1987), net in-migration totaled 47,000 people, only slightly greater than the average of the 1970s and 1980s and well below the totals of the preceding three fiscal years (see Figure I). This lessened population growth resulted from the construction-centered slowdown of the local economy.

FIGURE I
NET IN-MIGRATION TO ARIZONA AND MARICOPA COUNTY
1971-87



Source: Center for Business Research, College of Business, Arizona State University

Generally, changes in the level of net in-migration lag shifts in economic performance, such as an increase in the unemployment rate or a decrease in job creation. Each occurred in the Phoenix area during late 1986 and early 1987, preceding the sharp drop in net in-migration.

As a result, the total population change (including net natural increase) for the Phoenix area during 1986-87 was 68,000, down from 88,000 the preceding fiscal year. With constant gains in net natural increase (births minus deaths), even the lower 1986-87 figure is historically high, exceeded only in the preceding three years and in 1972-73.

Statewide, the population grew by approximately 108,000 during 1986-87, less than the record 132,000 of 1985-86. Net in-migration declined 25,000, to 72,000 people. The estimated population of the state reached 3.44 million by July 1, 1987, with 1.97 million people living in Maricopa County.

– Tom R. Rex
Research Manager

Purchasing Indicators Make Strong Gains in September

The Arizona economy continued to accelerate in September, with all purchasing indicators turning in a strong performance. Lead times on vendor shipments stretched at the highest rate in more than three years. Inventory rebuilding continued, while new orders and production jumped again. The only disturbing sign is the continued run-up in prices.

Business activity, now closing in on five consecutive years of measured growth, is picking up speed. The Arizona economy likely will move forward at an even faster clip in the fourth quarter, as it reaches for new, higher ground. The economy faces an overheated condition unless interest rates increase further, curtailing the inflationary trend that intensified during the second and third quarters. Continued growth will occur as the economy moves into the final quarter, and 1987 will go into the record books as a year of solid advances.

Table 1 presents the results of the September survey of Arizona purchasing managers. Analysis of these results follows.

PRICES

Prices paid for purchased items escalated in September at the same rate as in August. These two increase rates were the highest since June 1984, showing that inflationary pressures continue to build. Interest rates will need to rise further to slow this trend.

DELIVERY TIME

Delivery time on shipments from vendors continued to stretch, with the largest monthly lead-time increase in more than three years (since July 1984). This gain in lead times confirms that the expansion is robust, as supplier operating rates continue to accelerate.

INVENTORY LEVELS

Inventory levels of purchased materials rose for the second consecutive month, adding further impetus to the expansion. The growth in inventory, needed to support higher new order and production activity, will provide a continuing source of economic growth in the next quarter.

NEW ORDERS

New orders received by Arizona firms increased in September at the same strong rate as in the previous month. This indicator's growth during the last two months has been particularly strong and should ensure even higher levels of economic activity during the fourth quarter.

PRODUCTION

Production advanced again, although at a somewhat smaller rate than in the previous month. This jump is consistent with the new order hikes. With the exception of last July, production increases have been strong for all months of 1987.

EMPLOYMENT

Employment went up again in September, for the ninth month in a row. While the rate of employment growth has slowed somewhat during the past two months, it still signals an economy that is enjoying measured growth.

PURCHASES

Purchases of materials and supplies grew again in September, as needed to meet higher production levels, although the increase rate was the lowest of 1987.

– Harold Fearon

Dr. Fearon is the National Association of Purchasing Management Professor in the ASU College of Business.

Arizona Purchasing Survey

Now in its 25th year of monthly reporting, Dr. Harold Fearon's survey of Arizona business conditions utilizes data gathered at the close of each month from members of the purchasing management associations of Arizona and southern Arizona. They indicate the direction - higher, unchanged, or lower - of seven key measures of economic activity in the month just ended. These purchasing managers deal daily with supply, demand, and price factors in the marketplace; their aggregate readings have accurately charted the state's economic course for two decades, providing timely data on turning points.

TABLE 1
SEPTEMBER PURCHASING SURVEY

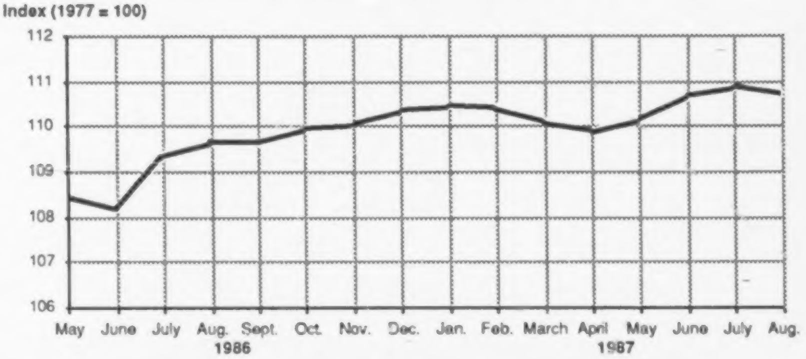
	Percent of Purchasing Managers Indicating Each Response (September compared to August)		
Key Indicators	*Higher*	*Same*	*Lower*
Prices paid for major commodities	39	60	1
Delivery time from vendors	43	50	7
Purchased materials inventory level	32	48	20
New orders received	49	32	19
Production	41	41	18
Employment	27	56	17
Purchases	40	38	22

Source: Purchasing Management Association of Arizona and the Purchasing Management Association of Southern Arizona

Arizona Leading Index Slips in August

The Arizona Index of Leading Economic Indicators declined slightly in August to 110.7, .2 percent off July's record high 110.9 (see Figure I).

FIGURE I
ARIZONA INDEX OF LEADING ECONOMIC INDICATORS



Source: Economic Outlook Center, College of Business, Arizona State University

TABLE 1
NET CONTRIBUTION OF INDIVIDUAL COMPONENTS TO THE ARIZONA INDEX OF LEADING ECONOMIC INDICATORS

	Net Contribution[+]			
	May	*June*	*July*	*Aug.*
Delivery Time*	-.04	.17	-.09	.07
Inventory Levels*	.04	.03	-.08	.04
New Orders*	.01	.10	-.10	.09
Production*	.02	.01	-.07	.13
Employment*	-.04	.04	.03	-.02
Residential Building Permits	-.01	.12	.27	-.68
Unemployment Insurance Claims	.04	-.05	-.01	.16
Average Workweek, Manufacturing	.21	-.09	.07	.07
Money Supply	-.13	-.12	-.01	.01
Change in Sensitive Materials Prices	.14	.21	.10	-.04
OVERALL INDEX CHANGE (%)	.3	.5	.2	-.02

[+] The net contribution of each component is calculated by multiplying the monthly percent change in its index by its relative importance.

*Based on indicators from the purchasing management associations of Arizona and southern Arizona.

Source: Economic Outlook Center, College of Business, Arizona State University

The index is based on 10 statistical economic indicators and is designed to predict economic activity up to six months in the future. While seven of the 10 components increased in August, the pull of the three declining components was sufficient to turn the entire index in a downward direction.

The greatest negative influence came from a sharp drop in the value of residential building permits. This component fell to its lowest level since November 1985. The current figure is the third lowest since first quarter 1983, when the Arizona economy began to emerge from the 1982 recession.

Four of the five seasonally adjusted components derived from a survey of Arizona purchasing managers rose in August. Only employment declined, while increases were reported for delivery times, inventory levels, new orders, and production.

After three consecutive monthly decreases, the national money supply (M2) advanced slightly but remained well below the peak value recorded in January. Hours worked in Arizona manufacturing firms also rose, and seasonally adjusted unemployment claims fell, exerting a positive influence on the index.

OUTLOOK

As long-term interest rates drifted upward during the summer, new residential housing activity in Arizona continued to slow. With multifamily permits already down sharply due to tax law changes, the weakness in the single family market is likely to worsen in the months ahead. The result will be more job losses in construction and housing-related industries.

Comparison of the Arizona Index of Leading Economic Indicators with the national index provides insight into this year's performance of the Arizona economy. The national index has been very consistent, marked by seven consecutive months of small but positive changes. During the same period, the Arizona index decreased four times and increased three times. As would be expected from such a comparison, the 1987 rate of job creation in Arizona has lagged behind the national rate. The state's economic outlook for the rest of the year is much the same – positive growth at a pace slower than that of the national economy.

– **Lee R. McPheters, Director**
Economic Outlook Center

ARIZONA ECONOMIC INDICATORS

	Month or Quarter	Value	Percent Change from Previous Period	Percent Change from Year Ago	Year-to-Date Value	Year-to-Date Percent Change from Year Ago
GROSS STATE PRODUCT (In Billions of Dollars, at Annual Rate)						
Arizona - Current Dollars	1st Qtr.	55.267	4.1	8.8	NA	NA
Arizona - 1982 Dollars	1st Qtr.	47.310	3.4	5.8	NA	NA
CONSUMER PRICE INDEX (1977 = 100)						
Metropolitan Phoenix	3rd Qtr.	201.7	0.5	4.1	NA	NA
INDEX OF LEADING ECONOMIC INDICATORS (1977 = 100)						
Arizona	August	110.7	-0.2	0.9	NA	NA
BUILDING PERMITS (Total Dollar Value in Thousands)						
Maricopa County	August	330,592	-8	7	2,673,442	-4
Pima County	August	40,683	-22	-28	406,227	-30
Balance of State	August	41,028	-21	-27	417,658	-3
Arizona	August	412,303	-11	-2	3,497,327	-8
TOTAL HOUSING UNITS AUTHORIZED						
Maricopa County	August	2,216	-18	-33	19,442	-41
Pima County	August	407	-16	-47	4,533	-45
Balance of State	August	714	-5	-16	6,627	-24
Arizona	August	3,337	-16	-32	30,602	-39
HOME SALES						
Maricopa County - Number	Sept.	4,350	-30	-43	47,160	-1
Maricopa County - Median Price	Sept.	82,850	1.2	3.6	80,175	2.9
HOUSING AFFORDABILITY INDEXES						
Metropolitan Phoenix - New Homes	2nd Qtr.	96	-5.9	1.1	NA	NA
Metropolitan Phoenix - Resale Homes	2nd Qtr.	109	-10.7	0.9	NA	NA
MORTGAGE INTEREST RATES (Conventional, 30-year, Fixed-rate)						
Maricopa County	Sept.	10.8	4.9	9.1	NA	NA
POPULATION ESTIMATES (In Thousands)						
Maricopa County	2nd Qtr.	1,970	0.6	3.6	NA	NA
Arizona	2nd Qtr.	3,440	0.6	3.2	NA	NA
ELECTRICAL POWER SALES (In Millions of Kilowatt Hours)						
Arizona	August	3,982	0.9	-4.1	26,413	5.9

NA = Not Applicable

Source: Center for Business Research, College of Business, Arizona State University

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CENTER FOR BUSINESS RESEARCH

Home Sales Remain Strong in Third Qtr.

The total number of homes sold in the Phoenix metropolitan area during third quarter 1987 (16,330) was the third highest quarterly total of the 1980s. Compared to the prior quarter, sales fell only 1 percent (see Table 1). This minimal decline indicates that the effect of April's increase in interest rates was relatively small, reflecting strength in the housing industry during this period.

Compared to third quarter 1986, the number of sales declined 16 percent. However, because last year's third quarter total was 15 percent higher than any other quarterly total of the 1980s, the annual decrease should not be overemphasized.

Seasonally adjusted, the number of third quarter sales (15,230) declined 2 percent from the second quarter total. New townhouse and condominium sales fell the furthest, down 16 percent.

When the seasonally adjusted numbers are compared to those for third quarter 1986, new home sales declined more than existing home sales. Sales of new townhouses and condominiums plunged 43 percent during this period, while sales of new single family homes fell 31 percent.

The proportion of total sales that were new single family homes rose when compared to the prior quarter, implying movement toward the higher percentages recorded prior to first

See "Home Sales," page 2

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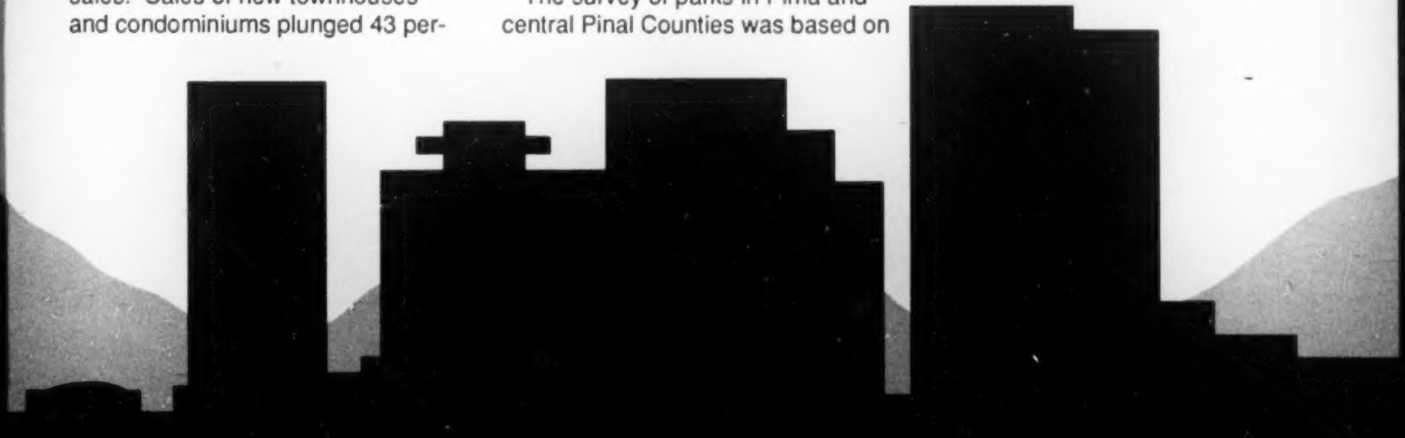
Survey Counts Snowbirds in Pima/Pinal Counties

An estimated 8,000 seasonal resident households were living in mobile home/RV parks in the metropolitan Tucson area at the height of the 1986-87 winter season in February. Mobile home/RV parks in central Pinal County were home to an estimated 2,000 winter resident households. These Pima/Pinal estimates represent the first time the ASU College of Business has expanded its annual mobile home/RV park survey beyond the Phoenix metropolitan area.

SURVEY METHODOLOGY

The survey of parks in Pima and central Pinal Counties was based on methodology used in the Phoenix area snowbird survey since 1984 (see the May 1987 *Arizona Business*). During the second and third weeks of February 1987, the ASU Survey Research Laboratory called the park owners or managers to ascertain the number of spaces, occupancy levels, proportion of winter residents, and other characteristics of their parks. Such a park census provides information on a major segment of winter residents rather than a count of the entire seasonal

See "Snowbirds," page 4



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quarter 1986. This increase was offset by a reduction in the sales share of previously owned townhouses and condominiums.

MEDIAN PRICE AND APPRECIATION RATE

The median price of all homes sold in the Phoenix area during the third quarter reached its highest level to date, at $81,675. However, when this value is seasonally adjusted, the 0.2 percent increase from the second quarter is the smallest since fourth quarter 1984 and the second smallest since fourth quarter 1982.

Prices of townhouses and condominiums remained soft. Seasonally adjusted, their median sales price fell 2.3 percent in the third quarter. Compared to third quarter 1986, the median price dropped 5.7 percent, with the price of new units declining the most.

Seasonally adjusted prices of single family homes continued to rise; the 4.6 percent increase in the price of new homes over the previous quarter was the largest of the cent more during third quarter 1987 than in third quarter 1986.

After seasonal adjustment, prices of previously owned single family homes also gained over the third quarter 1986 level, but by the smallest amount since 1985. When compared to the previous quarter, prices decreased by the largest amount since 1982.

After adjusting resale prices for home size, the median price per square foot for single family homes rose only 2.3 percent between the third quarters of 1986 and 1987, the smallest annual increase since 1985. The median price per square foot for townhouses and condominiums decreased 0.3 percent, the first decline in this category since 1985.

These numbers correspond to the appreciation rate measured in the Phoenix area. For single family homes, the quarterly rate was 0.6 percent, similar to the rate in each of the previous 11 quarters. Appreciation rates for townhouses and condominiums were lower, at a quarterly rate of 0.0 percent and an annual rate of 0.2 percent.

Mortgage interest rates have been relatively stable at slightly less than 11 percent for a conventional, 30-year, fixed-rate loan since first quarter 1986, excepting the period of lower rates at the beginning of 1987. If the current downward pressure on interest rates continues during the fourth quarter, they may fall below the third quarter's 10.8 percent.

Rates of increase in seasonally adjusted home prices and housing appreciation probably will moderate for single family homes, while continuing to decline slightly in the townhouse/condominium market. Inflation and competitiveness in the Phoenix area housing market have not accelerated enough to exert significant pressure on home prices. However, the aura of uncertainty that plagued October stock market activity and pervades analysis of the general economy could affect home buyers' willingness to commit themselves to large purchases, such as homes, even if interest rates descend to lower levels.

– **Sharla Kivett,** *Research Analyst*
Arizona Real Estate Center

TABLE 1
METROPOLITAN PHOENIX HOME SALES

	Single Family			Townhouse/Condominium			Grand
Third Quarter 1987	*Resale*	*New*	*Total*	*Resale*	*New*	*Total*	Total
Median sales price	$82,725	$99,275	$86,000	$62,850	$63,800	$62,975	$81,675
Percent change from:							
Second quarter 1987	2	6	2	-3	-1	-3	2
Third quarter 1986	5	11	5	-3	-8	-6	3
Number of sales	11,320	2,130	13,440	2,320	570	2,880	16,330
Percent change from:							
Second quarter 1987	-2	15	0	-8	-3	-7	-1
Third quarter 1986	-13	-31	-16	1	-42	-12	-16

Source: Arizona Real Estate Center and Center for Business Research, College of Business, Arizona State University; from data supplied by Marketron Services, Inc., Phoenix.

Year-end Acknowledgments

Monthly publication of a data-based periodical such as *Arizona Business* reflects numerous and diverse behind-the-scenes efforts. As 1987 draws to a close, we would like to acknowledge the contributions of those individuals whose expertise, hard work and dedication have brought our readers current economic/real estate data and analysis over the past year.

Sandra Palais, computer specialist, provides computer assistance with the many Center for Business Research projects on which we regularly report in *Arizona Business*. Palais also produces the computer-generated graphic figures that appear in each issue.

Nancy Merz, Center Research Assistant, collects and compiles data for the consumer price index, building permits and the Center's database. Graduate Research Assistant Kathleen Downing assists in collecting prices for the CPI.

During 1987, the center's editorial, administrative, secretarial and clerical staff assisted in numerous ways, including manuscript processing, page make-up, distribution, subscriber requests, and bookkeeping for *Arizona Business*. We extend special thanks to James Dodson, Joyce Didia, Sylvia Jackson, and Ruth Ann McClarnon.

Reliable Reproductions, Inc., prints *Arizona Business*.

We appreciate all of your efforts!

– **Timothy D. Hogan**
Center Director

– **Mary Wery Garcia**
Editor

Affordability of Phoenix area single family homes declined for the second quarter in a row during third quarter 1987. At 92, the index for new homes fell five points, to the lowest level of affordability since first quarter 1986. However, the current level remains higher than at any time since the late 1970s (see Table 1). The index for resale homes continued to be relatively high at 109, dropping only two points from the level of the prior quarter.

An index at or above 100 indicates that a median-income household is able to qualify for a median-priced home, assuming a 15 percent downpayment on a fixed-rate, conventional, 30-year mortgage and an income qualification factor of 28 percent. During third quarter 1987, a median-income household could afford a $90,000 home – more than the $82,725 median-priced resale home, but less than the $98,275 median-priced new home.

COMPONENT CHANGES

Throughout the 1980s, variations in mortgage interest rates have had a greater impact on housing affordability than fluctuations in either home prices or household incomes. During third quarter 1987, the effective mortgage interest rate (contract rate plus fees and charges, or "points") rose to 10.8 percent, its highest level since first quarter 1986.

Price increases on new homes (5.8 percent) were significantly greater than gains in personal income (1.7 percent) for the first time since 1981. However, the majority of the price rise resulted not from individual homes climbing in price, but from the continuing movement of buyers toward more expensive homes with greater amenities. Of all new home sales recorded during the third quarter, 47 percent were in the $100,000-or-more price category, compared to 38 percent during second quarter 1987 and 26 percent during third quarter 1986. This jump in prices, concomitant with the 0.2 percent increase in mortgage interest rates, resulted in larger housing payments during the third quarter, reducing affordability.

Price increases for resale homes were approximately the same as gains in household income; their lower affordability was due primarily to the rising interest rate.

NATIONAL AFFORDABILITY

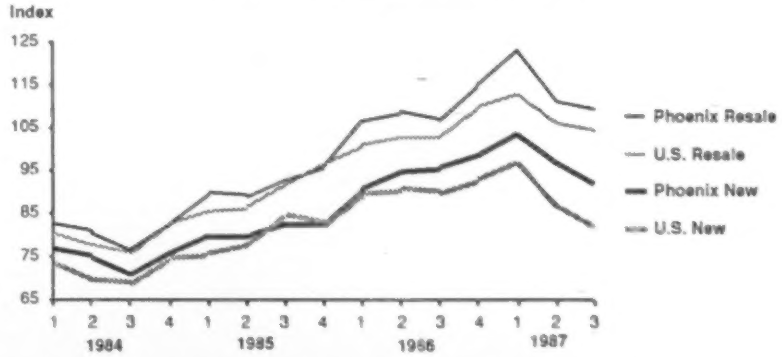
During the 1980s, housing affordability in the Phoenix area generally has surpassed the national average, with the divergence increasing since 1985 (see Figure I). Both new and resale home affordability maintained this relationship during the third quarter. Phoenix's new home index of 92 exceeded the national average by 10 points, while the resale index of 109 surpassed the national level by 5 points. The greater affordability of homes in metropolitan Phoenix is due primarily to the area's lower housing prices.

OUTLOOK

Housing prices and personal income are expected to rise only slightly during the fourth quarter, again making mortgage interest rates the key to the level of housing affordability. Interest rates are currently under downward pressure, despite the volatility caused by uncertainty in the money market. If interest rates continue their movement toward levels lower than the 10.8 percent of the third quarter, affordability should improve.

– **Sharla Klvett,** *Research Analyst*
Arizona Real Estate Center

FIGURE I
HOME AFFORDABILITY INDEXES
Phoenix Area vs. National, 1984-87



Source: Arizona Real Estate Center, College of Business, Arizona State University

TABLE 1
HOME AFFORDABILITY INDEXES
Metropolitan Phoenix

			Resale Homes			New Homes		
Quarter	*Median Gross Monthly Income*	*Effective Interest Rate*	*Median Sales Price*	*Monthly Housing Payment*	*Affordability Index*	*Madian Sales Price*	*Monthly Housing Payment*	*Affordability Index*
1st 1986	$2,740	11.0%	$75,000	$710	107	$88,200	$840	91
2nd 1986	2,730	10.7	77,150	720	109	87,950	820	95
3rd 1986	2,820	10.7	79,150	740	107	88,850	830	96
4th 1986	2,870	10.1	79,000	700	115	91,900	810	99
1st 1987	2,920	9.4	79,500	660	123	94,500	790	104
2nd 1987	2,970	10.6	81,500	750	111	92,925	860	97
3rd 1987	3,020	10.8	82,725	780	109	98,275	920	92

Source: Arizona Real Estate Center and Center for Business Research, College of Business, Arizona State University. Interest rates are from the Federal Home Loan Bank Board *News.*

population of the Tucson and central Pinal County areas since snowbirds staying in apartments, houses, condominiums, etc., were not enumerated.

TUCSON AREA

The Tucson metropolitan area has more than 400 mobile home/travel trailer/RV parks, for a total of 23,700 spaces, according to an inventory compiled by Sun Belt Market Research, Inc., of Tucson. The total supply of spaces increased 11 percent between 1985 and 1987, with RV parks contributing most to the growth rate. Higher vacancy rates accompanied the expanding supply during the 1986-87 winter season. The overall vacancy rate of 9 percent implies a total park population of 21,600 households.

The ASU survey found that the proportion of spaces occupied by winter residents varied by both type and size of park. Based on the same definition of a winter resident household used in the Phoenix area studies (a household that resides in Arizona less than nine months of the year), only 26 percent of the households staying in Tucson area mobile home parks were classified as seasonal rather than permanent residents. In the RV parks, 77 percent of the households were winter residents. Overall, seasonal residents were living in 36 percent of the occupied spaces in Tucson area parks.

Table 1 presents estimates of the winter resident population. Based on the combined results of the ASU survey and the Sun Belt Market Research, Inc., park inventory, almost 8,000 snowbird households lived in Tucson area mobile home/RV parks at the height of the 1986-87 season. The total number of such households in mobile home parks was greater than the number in RV parks, since the population staying in mobile home parks was so much larger.

CASA GRANDE/CENTRAL PINAL COUNTY

Although the economic base of central Pinal County has grown rapidly in recent years, the number of mobile home and travel trailer/RV parks is much smaller than in the State's two metropolitan areas or in the communities along the Colorado

fied 21 parks, for a total of 4,600 spaces, in the Casa Grande, Coolidge, Eloy, and Florence area.

While having a much smaller supply of spaces than the Tucson area, central Pinal County is more oriented toward the snowbird market. A larger proportion of spaces are located in travel trailer/RV parks, and winter residents occupy a much higher proportion of spaces in both the mobile home and travel trailer/RV parks. The results of the 1987 Pinal County survey, summarized in Table 1, indicate that more than 2,900 spaces in area parks were occupied. An estimated 65 percent of the spaces were home to seasonal residents, meaning that almost 2,000 snowbird households made communities in central Pinal County their Arizona residence during February 1987.

COMPARISON WITH THE PHOENIX AREA

The mobile home/RV park industry of metropolitan Tucson has been expanding in recent years, with the focus on attracting more winter residents. However, according to the 1987 ASU survey, the area's annual influx of 8,000 snowbird households is only about one-sixth the total of 47,000 households for metropolitan Phoenix or one-fifth the 40,000 that flocked to southeast Maricopa County/Apache Junction in 1987.

Like the Mesa/Apache Junction area, central Pinal County's travel trailer/RV spaces constitute more than one-half the total supply of

cent in the Tucson area. Results of the 1987 ASU survey indicate that the 1,900 snowbird households were more than one-half of the households staying in mobile home parks and almost all of the occupants of RV parks in the area during the 1986-87 winter season.

As urban growth encroaches on many areas of metropolitan Phoenix currently occupied by mobile home/RV parks, the snowbird phenomenon is expected to grow in importance in Yuma and other Colorado River areas, in Casa Grande and other communities of central Pinal County, and in the non-urban areas of Pima and Maricopa Counties.

– Stephen K. Happel
– Timothy D. Hogan

Dr. Happel is Associate Professor of Economics, and Dr. Hogan is Professor of Economics and Director of the Center for Business Research in the ASU College of Business. The authors gratefully acknowledge: funding support from the Arizona Department of Commerce, Arizona Public Service Company, Mountain Bell, Salt River Project, and Western Savings; the ASU Survey Research Laboratory; the park owners/managers who responded to the survey; and Sun Belt Market Research, Inc., for providing 1987 information on Tucson area mobile home/RV parks. Anyone interested in more detailed information on Tucson area parks should contact Sun Belt Market Research, Inc., 4651 N. First Avenue, Tucson, AZ 85718; (602) 293-2259.

TABLE 1
WINTER RESIDENTS IN MOBILE HOME AND RV PARKS
1986-87 Season

	Tucson Area*	Central Pinal*
Mobile Home Parks		
Number of Occupied Mobile Home Spaces	13,000	900
Number of Winter Resident Households	3,400	500
Percent of Spaces Occupied by Winter Residents	26	55
RV Parks		
Number of Occupied Travel Trailer/RV Spaces	3,700	1,200
Number of Winter Resident Households	2,900	1,100
Percent of Spaces Occupied by Winter Residents	77	89
Mixed Parks		
Number of Occupied Spaces	4,900	800
Number of Winter Resident Households	1,600	300
Percent of Spaces Occupied by Winter Residents	34	41
Total Number of Winter Resident Households	7,900	1,900

*Numbers are rounded to nearest hundred; percentages were calculated prior to rounding.

Source: 1987 ASU Winter Resident Survey; Sun Belt Market Research, Inc.

Growth of the Arizona Gross State Product slowed sharply during the first half of 1987. Adjusted GSP, which excludes the volatile agriculture and mining industries, rose only an inflation-adjusted 3.4 percent in the year ending second quarter 1987, well below the 5.7 percent long-term annual average rate. The quarterly changes shown in Table 1 are subject to considerable further revision.

Industrial growth from mid-1986 until mid-1987 was highly inconsistent. The construction industry's GSP declined 14 percent. In contrast, relatively strong expansion characterized the transportation, communications and public utilities industry (9 percent) and the finance, insurance and real estate industry (7 percent). The other industries grew slowly: government just 1 percent and manufacturing, trade and services each in the 4-to-5-percent range.

Thus, while construction was most responsible for the economy's deceleration, the other industries also experienced relatively slow expansion. Though the Arizona economy's growth moderated more than national economic growth, the state's expansion remained more rapid.

REVISIONS

A variety of revised and updated data were included in the GSP calculations. In particular, the personal income data – a key component of the GSP calculations – were revised back to 1970.

The revisions had the greatest impact on 1986 GSP estimates. Previously reported at a slightly subpar 5.2 percent, GSP is now estimated to have expanded 6.9 percent during 1986. Adjusted GSP estimates also rose, from 6.0 to 7.3 percent.

Despite these revisions, the quarterly pattern of personal income reported by the U.S. Department of Commerce remains highly suspect. As discussed in the GSP article in the June 1987 Arizona Business, personal income data do not correspond well to other economic data. Part of the problem relates to seasonality. Though supposedly seasonally adjusted, the personal income data since 1983 have exhibited a significant seasonal pattern.

This seasonality extends to the quarterly GSP data. Thus, for the first time, the Center separately seasonally adjusted the GSP (see the quarterly percent changes in Table 1). While this adjustment improves the quarterly pattern, it still exhibits two problems. First, the seasonal adjustment procedure does not fully correct for the seasonality because of the shift in the seasonal pattern of the personal income data since 1983. Second, regardless of seasonality, the personal income estimates remain subject to further improvement.

In light of these factors, the Center recommends that quarterly percent changes in personal income and GSP be used cautiously. Annual change figures eliminate the seasonality problem but also are subject to significant revision.

OUTLOOK

Employment and other data indicate that Arizona economic growth began to accelerate during the summer from the near standstill of the winter and spring. Thus, GSP probably expanded more rapidly during the third quarter than in the first half of 1987.

Declines in the construction industry are likely to continue, depressing the Arizona economy; a sharp rebound in the other industries is not expected. Thus, GSP probably will continue to expand at subpar rates into 1988.

– Tom R. Rex
Research Manager

TABLE 1
ECONOMIC GROWTH

	Arizona Gross State Product[r]				Gross National Product
Quarter	*Billions of Current Dollars, Annualized*	*Quarterly Percent Change (1982 Dollars)*	*Quarterly Percent Change (Adjusted GSP)**	*Annual Percent Change (Adjusted GSP)**	*Annual Percent Change (1982 Dollars)*
First 1986	51.648	3.0	2.6	8.2	3.6
Second 1986	51.965	0.9	1.1	7.9	3.3
Third 1986	52.456	0.2	0.7	6.2	2.6
Fourth 1986	53.673	2.3	2.5	7.0	2.2
First 1987	55.461	0.4	-0.2	4.1	2.0
Second 1987.	56.162	1.0	0.4	3.4	2.4

*The adjusted GSP is the annualized GSP in billions of 1982 dollars, minus the contributions of the agriculture and mining industries.

[r] Revised; quarterly estimates are subject to significant revision.

Source: Center for Business Research, College of Business, Arizona State University. GNP data are from the U.S. Department of Commerce, Bureau of Economic Analysis.

The Arizona economy continued to pick up speed in October. All indicators were on the positive side. Vendor lead times stretched again, and both new orders and production enjoyed strong increases. Employment went up at the highest rate since July. Prices also escalated again.

While the national economy still faces major foreign trade and government deficit problems, and inflation pressures mount, the outlook for the Arizona economy is very positive as the acceleration continues. It will be several months before the overall effects of the financial markets' rollercoaster ride can be assessed. However, the Arizona economy will grow further as it compiles a fifth year of solid advances.

Arizona Purchasing Survey

Now in its 26th year of monthly reporting, Dr. Harold Fearon's survey of Arizona business conditions utilizes data gathered at the close of each month from members of the purchasing management associations of Arizona and southern Arizona. They indicate the direction - higher, unchanged, or lower - of seven key measures of economic activity in the month just ended. These purchasing managers deal daily with supply, demand, and price factors in the marketplace; their aggregate readings have accurately charted the state's economic course for two decades, providing timely data on turning points.

PRICES

Prices paid for purchased items increased at the same rate as in September. The pace of inflation has picked up over the past three months, with each month recording a net increase higher than in any month since June 1984. This upward price pressure was one of the prime factors contributing to recent turbulence in the financial markets.

DELIVERY TIME

Delivery time on shipments from vendors stretched in October at the same rate as in September. During both months, lead times increased at the highest rate in more than three years (since July 1984) – characteristic of an economy enjoying robust acceleration in operating rates.

INVENTORY LEVELS

Inventory levels of purchased materials rose only slightly and at a rate well under the September rate. Inventory growth has been positive in all but one month (July) this year, but the add rates have been irregular. The inventory increases have provided a source of upward thrust to the Arizona economy and likely will continue to support further growth over the balance of the year.

TABLE 1
OCTOBER PURCHASING SURVEY

Key Indicators	**Percent of Purchasing Managers Indicating Each Response (October compared to September)** *Higher*	*Same*	*Lower*
Prices paid for major commodities	42	54	4
Delivery time from vendors	44	48	8
Purchased materials inventory level	29	45	26
New orders received	43	36	21
Production	39	44	17
Employment	23	69	8
Purchases	44	35	21

Source: Purchasing Management Association of Arizona and the Purchasing Management Association of Southern Arizona

NEW ORDERS

New orders received by Arizona firms went up in October, but the rate was somewhat lower than in the previous two months. The monthly increases during 1987 have shown good strength and generally have been well above those for most months of 1986. The vitality of the economic expansion still is very evident.

PRODUCTION

Production advanced again, for the 58th consecutive month. The increase rate was identical to the new order rate. Further production hikes will be needed to meet the continuing new order jumps.

EMPLOYMENT

Employment registered a strong gain in October, the largest of the preceding three months and the 10th consecutive monthly workforce addition.

PURCHASES

Purchases of materials and supplies increased again in October, at a somewhat greater rate than in September.

– Harold Fearon

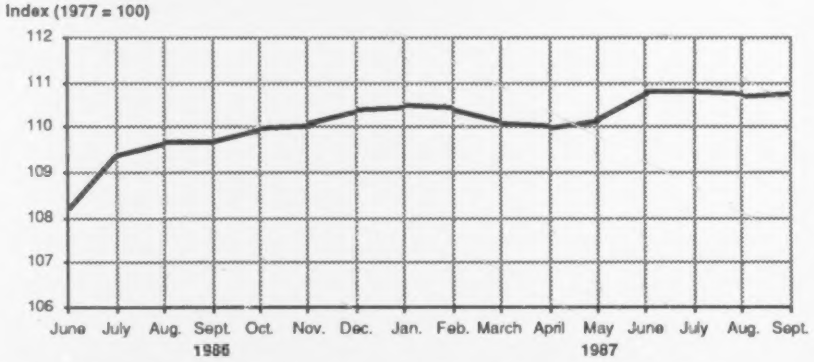
Dr. Fearon is the National Association of Purchasing Management Professor in the ASU College of Business.

'87 Index Available

An index to the 1987 issues of *Arizona Business* is available on request from the Center for Business Research by calling (602) 965-3961.

Arizona Leading Index Bounces Back in September

FIGURE I
ARIZONA INDEX OF LEADING ECONOMIC INDICATORS



Source: Economic Outlook Center, College of Business, Arizona State University

TABLE 1
NET CONTRIBUTION OF INDIVIDUAL COMPONENTS TO THE ARIZONA INDEX OF LEADING ECONOMIC INDICATORS

	Net Contribution+			
	June	*July*	*Aug.*	*Sept.*
Delivery Time*	.17	-.09	.07	.05
Inventory Levels*	.03	-.08	.04	.03
New Orders*	.10	-.10	.09	-.02
Production*	.01	-.07	.13	-.05
Employment*	.04	.03	-.02	-.04
Residential Building Permits	.16	.27	-.68	.41
Unemployment Insurance Claims	-.05	-.01	.16	-.10
Average Workweek, Manufacturing	-.07	.02	.12	-.28
Money Supply	-.15	-.01	.02	.12
Change in Sensitive Materials Prices	.22	.10	-.03	-.06
OVERALL INDEX CHANGE (%)	.5	0	-.1	.1

+The net contribution of each component is calculated by multiplying the monthly percent change in its index by its relative importance.

*Based on indicators from the purchasing management associations of Arizona and southern Arizona.

Source: Economic Outlook Center, College of Business, Arizona State University

The Arizona Index of Leading Economic Indicators advanced in September to 110.8 percent of its 1977 average, offsetting August's decline to 110.7 and returning to the level of June and July (see Figure I).

The index is derived from 10 economic indicators combined and weighted to project the pace of economic activity up to six months ahead. Gains in only four components propelled the September increase. A rebound in the value of residential building permits exerted the greatest positive influence; permits had declined sharply in August, pulling the index down. The money supply also registered an increase in September, for the second consecutive month. Finally, delivery times and inventory levels, derived from a survey of Arizona purchasing managers, rose.

The same purchasing survey yielded seasonally adjusted decreases in new orders, production, and employment. Hours worked in Arizona manufacturing firms dipped, and unemployment claims – a negative indicator – increased. A national indicator, prices of sensitive materials, also slid.

OUTLOOK

Recent gyrations in the stock market may lead to a divergence in the paths of the Arizona and national indexes of leading economic indicators. Unlike the Arizona index, the national index includes stock prices as a component. Analysts expect the national index to decline in October and possibly also in November due to slipping stock prices, weakness in orders for consumer goods, and a slowdown in housing activity. Many also believe consumer expenditures will fall as households attempt to rebuild wealth holdings lost in the stock market slide.

While some observers believe potential homebuyers will delay housing purchases due to general economic uncertainty, an equally plausible argument may be advanced for a future rise in home sales, in response to interest rate declines brought on by money supply growth. This increase would stimulate the Arizona economy as well as boost key components in the Arizona Index of Leading Economic Indicators.

During the past three months, the Arizona index has not advanced past the level recorded in June. Such flat periods have not been uncommon in the 17 years of monthly data available for the index, and they are often followed by movements in the index to new highs. A pattern of consecutive declines is more likely to signal a turning point into recession. So far, such declines are not in evidence. Rather, the index continues to indicate that growth will be slow but positive in the months ahead.

– **Lee R. McPheters,** *Director*
Economic Outlook Center

ARIZONA ECONOMIC INDICATORS

	Month or Quarter	Value	Percent Change from Previous Period	Percent Change from Year Ago	Year-to-Date Value	Year-to-Date Percent Change from Year Ago
GROSS STATE PRODUCT (In Billions of Dollars, at Annual Rate)						
Arizona - Current Dollars	2nd Qtr.	55.162	1.3	8.1	NA	NA
Arizona - 1982 Dollars	2nd Qtr.	47.609	-0.2	4.0	NA	NA
CONSUMER PRICE INDEX (1977 = 100)						
Metropolitan Phoenix	3rd Qtr.	201.7	0.5	4.1	NA	NA
INDEX OF LEADING ECONOMIC INDICATORS (1977 = 100)						
Arizona	Sept.	110.8	0.1	1.0	NA	NA
BUILDING PERMITS (Total Dollar Value in Thousands)						
Maricopa County	Sept.	397,739	20	22	3,071,181	-1
Pima County	Sept.	81,506	51	18	467,733	-26
Balance of State	Sept.	67,701	65	0	485,359	-3
Arizona	Sept.	526,946	27	18	4,024,273	-5
TOTAL HOUSING UNITS AUTHORIZED						
Maricopa County	Sept.	3,204	44	-23	22,646	-39
Pima County	Sept.	800	96	-1	5,333	-41
Balance of State	Sept.	942	31	-19	7,569	-23
Arizona	Sept.	4,946	48	-19	35,548	-37
HOME SALES						
Maricopa County - Number	Oct.	4,220	-2	-7	51,400	-1
Maricopa County - Median Price	Oct.	82,000	-1.0	4.1	80,000	2.6
HOUSING AFFORDABILITY INDEXES						
Metropolitan Phoenix - New Homes	3rd Qtr.	92	-5.2	-4.2	NA	NA
Metropolitan Phoenix - Resale Homes	3rd Qtr.	109	-1.8	1.9	NA	NA
MORTGAGE INTEREST RATES (Conventional, 30-year, Fixed-rate)						
Maricopa County	Oct.	11.2	3.7	13.1	NA	NA
POPULATION ESTIMATES (In Thousands)						
Maricopa County	3rd Qtr.	1,984	0.7	3.2	NA	NA
Arizona	3rd Qtr.	3,460	0.6	2.9	NA	NA
ELECTRICAL POWER SALES (In Millions of Kilowatt Hours)						
Arizona	Sept.	3,359	-15.6	9.8	29,773	6.3

NA = Not Applicable

Source: Center for Business Research, College of Business, Arizona State University

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CENTER FOR BUSINESS RESEARCH

Quarterly Economic Forecast Update

Expansion To Slow in 1988-1989

The turbulent economic events of the autumn months have induced levels of uncertainty not seen since the recession years of the early 1980s. While the national and state economies are not expected to descend into recession during the next several months, doubts about the viability of continued business expansion through 1988 are mounting.

The Economic Outlook Center (EOC) still expects the economy to grow modestly through the end of next year. However, the onset of a recession in 1989 or sooner is now not only possible but probable. Its timing and severity are difficult to predict in light of the complex interplay of global economic forces.

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THE NATIONAL ECONOMY

In the wake of the October plunge of world financial markets, distracted analysts might easily overlook fundamental statistical evidence of economic growth. Indeed, the recent record has been impressive. Employment continues to climb, industrial production is expanding, and the trade deficit finally is showing signs of improvement. Real economic growth in the United States through third quarter 1987 exceeded the expectations of most forecasters.

Recent developments indicate that the national economy will grow more slowly during the next few quarters. Major U.S. automobile manufacturers, active participants in the expansion of industrial production, are watching inventories of unsold vehicles rise to uncomfortable levels. Since a surge in automobile purchases is unlikely in the near future, production cutbacks seem inevitable. With the uncertain outlook for most types of business investment and capital spending, aggregate industrial production in the United States will not approach the 8.7 percent annual growth rate of third quarter 1987.

Reduced expectations for the 1988 economy also result from the outlook for consumption expenditures. Economists expressed much concern about consumer spending even before the stock market crashed in October. Since then, projections of future spending flows have become increasingly dire for a variety of reasons.

The ballyhooed "wealth effect" on consumers has been overemphasized. Although the bull market helped to create a generally benign climate for spending and investment, consumption was fueled more by the robust advance of real personal income and loose credit policies than by swollen stock portfolios. Conversely, the sharp reduction in common stock equity should not by itself precipitate a plunge in consumer outlays.

See "Forecast," page 2

ARIZONA
BUSINESS

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1988 and 1989 ECONOMIC FORECASTS: UNITED STATES

	Actual *1986*	Projected *1987*	Forecast *1988*	Forecast *1989*
Gross National Product				
Millions of 1982 Dollars	3,713	3,811	3,896	3,981
Percent Change	−2.9	2.6	2.2	2.2
Industrial Production				
Percent Change	1.0	3.5	3.0	2.3
Housing Starts				
Number in Millions	1.82	1.66	1.58	1.47
Percent Change	4.4	-8.8	-4.8	-7.0
Unemployment Rate				
Percent	7.0	6.2	6.1	6.2
Consumer Price Index				
Percent Change	1.9	3.7	4.2	4.8
Three-Month Treasury Bill Rate				
Percent Change	6.0	5.8	6.6	7.6

Source: Economic Outlook Center, College of Business, Arizona State University

Other factors will suppress consumption, regardless of financial market fluctuations. Installment debt has climbed to historically high levels throughout the current expansion, while the national savings rate has been very low. Real personal income growth has remained modest for much of 1987, and inflation, still low compared with late-1970 levels, has accelerated.

Cyclical factors also will affect consumers in the months ahead. Americans have purchased millions of new homes and cars during the last few years, and this, combined with the prospect of federal spending cuts and/or tax increases, will reduce disposable income during 1988 and 1989.

Compounded by the negative psychological impact of the crisis on Wall Street, these factors point toward a somewhat bleak picture for consumer spending in 1988 and 1989.

THE U.S. OUTLOOK

The EOC's forecast for the U.S. economy is summarized in Table 1. The forecast portrays an economy that will advance at a sluggish pace during the next two years. Real GNP growth is expected to average 2.2 percent through 1989, with much of the growth driven by improved manufacturing performance and export activity. Offsetting factors will include slower consumer spending and lower levels of business investment, housing construction and government purchases.

A key contingency is foreign demand for U.S. exports and financial assets. Should our trading partners fail to respond to the lower prices for U.S. goods that result from the dollar's decline, U.S. production, profits and income will suffer. If the dollar falls so much that interest rates soar and inflation surges, a recession could begin earlier than anticipated. Currently, the forecast projects a national inflation rate of 4.2 percent for 1988 and 4.8 percent for 1989. Long and short-term interest rates are expected to rise gradually through the forecast period.

1988-1989 ARIZONA FORECAST

Reduced expectations for the national economy translate into slower growth for Arizona. The EOC's forecasts for Arizona and Maricopa County are summarized in Tables 2 and 3. Statistical evidence on employment, personal income, retail sales and construction clearly indicates that the state economy struggled (relative to 1983-1986, at least) in 1987. Nearly every sector performed below the expectations of analysts, in spite of the generally favorable record compiled by the national economy. The Arizona outlook for the next two years parallels that of the nation: slower growth, with a gradually greater probability of recession as 1989 approaches.

Personal Income

Personal income in Arizona is projected to grow 7.5 percent in 1988 and 6.6 percent in 1989, comparable to the 6.8 percent increase expected for 1987. Preliminary estimates for the first half of 1987 show an increase of just 5.9 percent over the first half of 1986. This pattern of growth departs markedly from gains of the last few years that consistently exceeded 9 percent.

Several factors explain why income growth is waning. While job creation is slowing, some well-paying sectors - construction, financial services and manufacturing - are performing poorly compared to the previous three years. Adjustments to wages and salaries that are based in part on inflation measures have been suppressed to some extent by the small increases in consumer prices recorded during 1986. Evidence is accumulating that population growth, an important source of income gains in prior years, has already decelerated and will continue to do so next year. Finally, while inflation may be slightly higher in 1988 and 1989 than it was in 1986 and 1987, the advance will not be enough to produce a substantial increase in nominal income growth.

These and, for that matter, any projections of personal income for the 1987-1989 period should be carefully evaluated. Recent experience has shown that the Bureau of Economic Analysis, source of the personal income data, has a tendency to make very large revisions. With so many financial assets having been sold in 1987, the non-wage components of personal income growth are particularly volatile; the direction, let alone the magnitude, of subsequent revisions is difficult to assess.

Retail Sales

Arizona retail sales have been disappointing during the last two years. Although sales increased 9.7 percent in 1985, they advanced only 6.3 percent in 1986 and are projected to rise just 6 percent when all the totals for 1987 are in. Anemic retail activity partially explains the slump in state revenue collections that has forced mid-year budget cuts in fiscal 1986-87 and 1987-88.

Reduced migration to the state, moderate inflation, and smaller employment and wage gains are responsible for the recent weakness in consumer spending in Arizona. Higher inflation and a slight improvement in the rate of job creation should push Arizona retail sales up 6.5 percent in 1988; by 1989, a weakening economy will result in a slower rate of increase. Figure I illustrates how population growth and price increases have combined to inflate retail sales totals in recent years and depicts the outlook for through 1989.

Inflation

As measured by the Metropolitan Phoenix CPI and the U.S. CPI, inflation averaged about 4 percent both locally and nationally for most of 1987. This rate is forecast to rise moderately, in line with higher costs for electricity, insurance, medical care and imported goods (particularly apparel and motor vehicles). Most of these items have registered relatively modest price increases in the recent past, but they are projected to command higher prices during the next 18 months. The effects of electricity rate increases should be apparent in the Phoenix area by this summer, while rising import prices already are having an effect.

Oil prices are not expected to have a major impact on the inflation rate in the near future. Global crude oil supplies far exceed current refinery demand, resulting in flat or falling prices in most markets. It does not look as if OPEC will be able to effectively enforce fixed prices or production quotas; however, it is also unlikely that American consumers will enjoy substantially lower fuel prices during the forecast period. Arizona, a state that relies primarily on the California-Alaska-Pacific Rim producers, is not directly affected by actions of the Middle East-Europe-Gulf Coast market suppliers. As a result, consumers in the state should benefit from stable fuel prices.

Employment

Figure II shows the projected pattern of employment growth for selected industries in Arizona. Preliminary estimates indicate that 1987 was the state's weakest year for job creation since the 1981-1982 recession. In fact, with estimates in the neighborhood of 2 percent, the Economic Outlook Center anticipates revisions to bring the 1987 annual growth rate up to 3 percent.

The recent weakness in employment stems from a steep decline in construction activity in the state, suspension of the rapid growth of aircraft and aerospace manufacturers, and problems experienced by the financial services industry.

Construction employment has been sliding steadily since summer 1986 and will continue to fall before leveling off in 1988. This weakness, combined with unstable industry conditions, has cooled the finance, insurance and real estate (FIRE) industry to the point where job growth is virtually flat. Federal budget cuts appear to be affecting hiring by the state's defense contractors even sooner than expected, resulting in few opportunities in an industry that had been a vital contributor to the 1983-1986 boom.

1988 AND 1989 ECONOMIC FORECASTS: ARIZONA

	Actual *1986*	Projected *1987*	Forecast *1988*	Forecast *1989*
Gross State Product				
Millions of 1982 Dollars	46,012	48,130	50,545	52,765
Percent Change	6.9	4.6	5.0	4.4
Personal Income				
Millions of Current Dollars	44,719	47,764	51,341	54,724
Percent Change	9.3	6.8	7.5	6.6
Retail Sales				
Millions of Current Dollars	17,187	18,221	19,410	20,581
Percent Change	6.3	6.0	6.5	6.0
Unemployment Rate				
Percent	6.9	7.0	7.0	7.2
Wage and Salary Employment				
Number in Thousands	1,341.4	1,381.0	1,428.3	1467.0
Percent Change	4.9	3.0	3.4	2.7
Population				
Number in Thousands	3,332	3,440	3,532	3,618
Percent Change	4.1	3.2	2.7	2.4
Single Family Units Permitted				
Number	34,079	28,560	28,490	27,755
Percent Change	2.4	-16.2	-0.2	-2.6
Multifamily Units Permitted[1]				
Number	27,008	10,100	10,230	9,880
Percent Change	-27.2	-62.6	1.3	-3.4

[1] Apartment complexes of three or more units

TABLE 3
1988 AND 1989 ECONOMIC FORECASTS: MARICOPA COUNTY

	Actual *1986*	Projected *1987*	Forecast *1988*	Forecast *1989*
Consumer Price Index				
Percent Change	1.3	4.3	5.2	5.5
Retail Sales				
Millions of Current Dollars	11,342	12,004	12,789	13,566
Percent Change	4.7	5.9	6.5	6.1
Unemployment Rate				
Percent	5.6	5.8	5.9	6.3
Wage and Salary Employment				
Number in Thousands	883.5	910.5	943.4	971.6
Percent Change	4.9	3.1	3.6	3.0
Population				
Number in Thousands	1,902	1,970	2,026	2,079
Percent Change	4.9	3.6	2.8	2.6
Single Family Units Permitted				
Number	23,851	19,320	19,300	18,810
Percent Change	3.1	-19.0	-0.1	-2.5
Multifamily Units Permitted[1]				
Number	18,311	7,220	7,240	7,050
Percent Change	-32.9	-60.6	0.3	-2.6

[1] Apartment complexes of three or more units

Source (Tables 2 and 3): Economic Outlook Center in the College of Business, Arizona State University

The EOC expects employment growth in Arizona to average 3.4 percent in 1988 and 2.7 percent in 1989. However, should the construction industry continue to weaken, even these modest growth rates may prove difficult to attain.

Construction

In spite of sharp reductions in home building during 1987, activity compared to most other parts of the country. Office and commercial vacancy rates remain high, and new building is very slow, mirroring conditions in many other metropolitan areas.

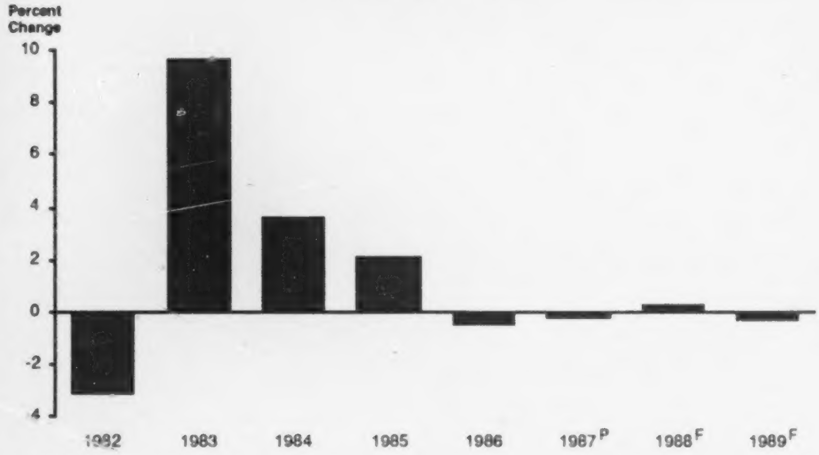
Arizona, and metropolitan Phoenix in particular, are fortunate to be well diversified, although they are especially dependent on the construction and development component of their economic bases. Consequently, Arizona's economy was unusually sluggish in 1987 and will continue to be lethargic for the next two years. Fortunately, the diverse composition

struction will help Arizona to keep moving forward, but the boom will not return without a surge in new construction activity.

RISKS TO THE OUTLOOK

Interest rates and possible financial instability represent the major risks to the outlook. The forecast assumes a gradual, orderly rise in interest rates through 1989. If a dive in the exchange value of the dollar induces a jump in interest rates, construction activity and the financial industry will suffer sufficiently to

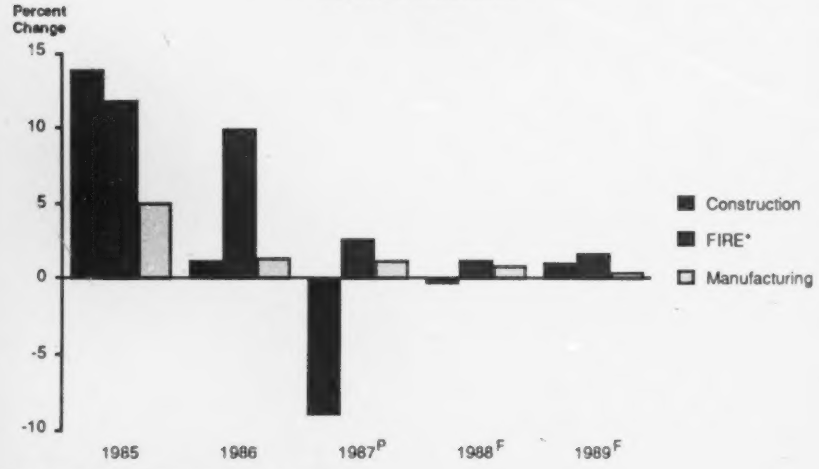
FIGURE I
ARIZONA REAL PER CAPITA RETAIL SALES, 1982-89
Adjusted for Inflation



P = Projected; F = Forecast

Source: Economic Outlook Center in the College of Business, Arizona State University

FIGURE II
ARIZONA EMPLOYMENT GROWTH, 1985-89
Selected Industries



*Finance, Insurance, and Real Estate
P = Projected; F = Forecast

Source: Arizona Department of Economic Security; and the Economic Outlook Center in the College of Business, Arizona State University.

early as 1988.

Part of the recipe for financial stability includes significant reductions in the trade and federal budget deficits. The falling dollar has helped to make the prices of American manufactured goods more competitive on world markets; it remains to be seen whether foreign demand will be sufficiently strong to provide the needed boost to U.S. exports. If not, the recovery of the economy's industrial sector may be aborted prematurely, and Arizona's electronic industry may not rebound as hoped.

Arizona has little to gain from negotiations on the federal budget. Like most Western states, Arizona has benefited from federal largess in the form of military bases, water projects, agricultural price supports and defense-related manufacturing. How cuts in federal spending could help the state is hard to envision. Lowering the deficit may come at the expense of those regions that traditionally have received more than they have contributed to the federal government.

Regardless, should the budget deficit deteriorate rather than improve, interest rates could be driven upward to a point at which Arizona's construction-sensitive economy would be adversely affected.

SUMMARY

Arizona has not set any economic records lately, but the economy is in reasonably good shape, considering the plight of the construction industry. The state is fortunate that economic growth has managed to proceed without key industries such as construction, finance, electronics and aerospace taking the lead. These forecasts fall well short of predicting a recession, but the probability of a downturn looms larger than it has for several years.

The Arizona Index of Leading Economic Indicators points to continuing expansion of the state economy well into 1988, a testimony to its remarkable resilience. Beyond the next several months, however, the questions multiply, while the answers dwindle in number. The Arizona economy will continue to grow at a relatively slow pace, perhaps through 1990; vigorous growth is unlikely, and doubts about the duration of the expansion persist.

– **Brian Cary**, *Economist*
Economic Outlook Center

Valley's New Business Start-Ups Slow in 1987

Entrepreneurs started fewer new businesses during first half 1987 than during first half 1986 in the metropolitan Phoenix area. The quarterly Metro Phoenix New Business Index was 96 for the first quarter of 1987 (1986 = 100) and 94 for the second quarter (see Figure I).

The index measures new business start-ups, excluding franchises, branches, and relocations. Data are obtained through a cooperative agreement between the *Arizona New Business Review* and the Center for Business Research.

During first half 1987, 1,891 new businesses opened, compared to 2,000 during the same period of 1986. Start-ups were down in March, April and June (see Figure II).

BY INDUSTRY

Entrepreneurs in manufacturing businesses bucked the overall trend as the number of start-ups rose 70 percent, to 109 in first half 1987 from 64 for the same period of 1986 (see Figure III). The greatest decline – 27 percent – occurred in the trade sector's rate of start-ups, to only 509 firms during first half 1987, from 693 firms in first half 1986.

LOCATION

The locational pattern of new businesses in the Valley during the first halves of 1986 and 1987 shows that Glendale surpassed other areas in start-ups during January and June, but sagged most sharply in April (Figure IV). The metropolitan area experienced a flat growth period during February, which was not felt by the East Valley, where start-ups increased 18 percent.

NEW INDICATOR

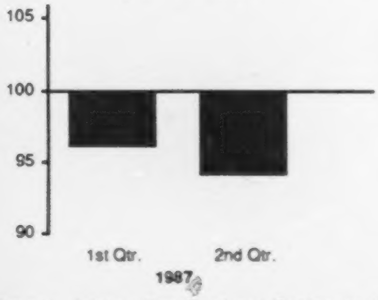
Because new businesses are an important source of jobs for the Phoenix area, tracking start-ups provides a useful indicator of the pace of economic activity. The slower growth reported for first half 1987 is consistent with other indicators, such as wage and salary employment growth. The increase in manufacturing start-ups offers the brightest news; this sector has been troubled since the 1982 recession.

Data for second half 1987 will be reported upon its compilation.

– Lee McPheters
– Yolanda Strozier

Dr. McPheters is Professor of Economics and Director of the Economic Outlook Center. Ms. Strozier is a senior Economics major.

FIGURE I
METROPOLITAN PHOENIX
NEW BUSINESS INDEX
(1986 = 100)



Source: Arizona New Business Review; and the Center for Business Research in the College of Business, Arizona State University.

FIGURE II
METROPOLITAN PHOENIX NEW BUSINESS START-UPS
By Month: 1986 vs. 1987

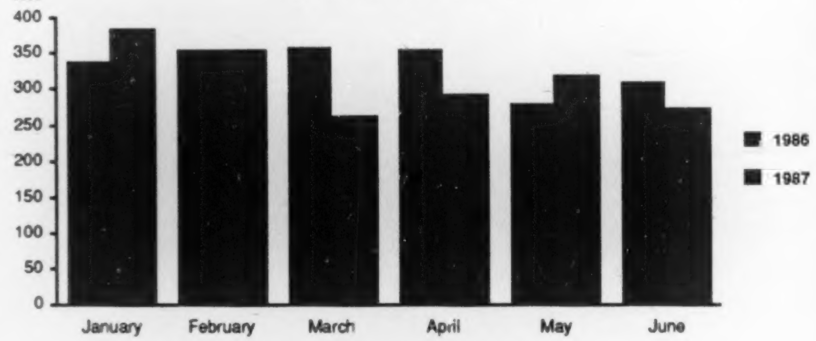
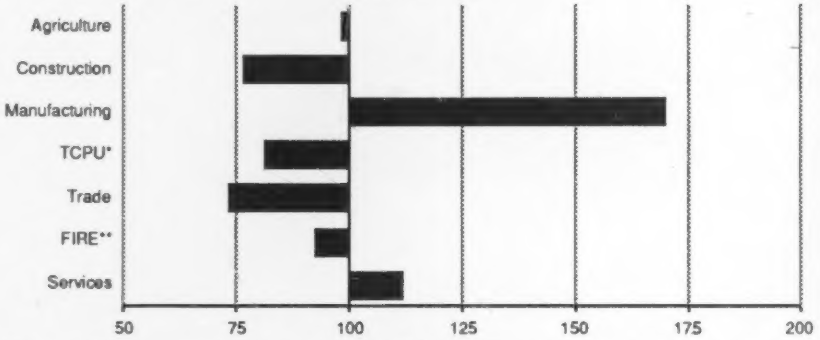
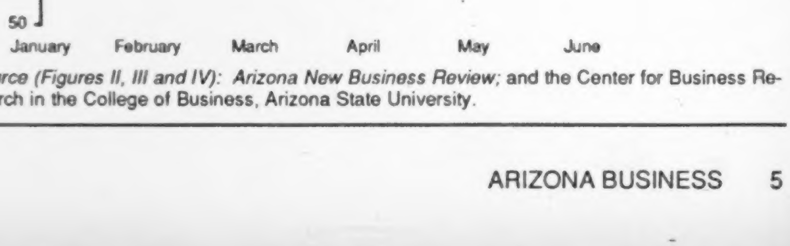


FIGURE III
METRO PHOENIX NEW BUSINESS INDEX
By Industry: First Half 1987
(1986 = 100)



*Transportation, communications and public utilities. **Finance, insurance and real estate

FIGURE IV
METROPOLITAN PHOENIX NEW BUSINESS INDEX
By Location: First Half 1987
(1986 = 100)



Source (Figures II, III and IV): Arizona New Business Review; and the Center for Business Research in the College of Business, Arizona State University.

Arizona Construction Rings Up Another $1.4 Billion Quarter

With $1.4 billion in new projects during the third quarter, the Arizona construction industry is well on its way to another good year, much like 1986. During the first three quarters, a total of $4 billion was permitted, compared to $4.3 billion for the same period of 1986. Unlike 1986, 1987 activity has been driven by the development of several major projects, especially in Maricopa County. For the first three quarters of 1987, a total of 72,098 permits were issued, much less than the 82,868 permits recorded for that period of 1986.

TABLE 1
REPORTING UNITS WITH GREATEST TOTAL VALUE OF BUILDING PERMITS
Third Quarter, 1987

Reporting Unit	Value *(in millions)*
Phoenix	$342.7
Scottsdale	297.9
Mesa	118.3
Tucson	77.1
Unincorporated Maricopa County	70.4
Unincorporated Pima County	70.0
Tempe	66.9
Chandler	58.5
Glendale	46.3
Gilbert	40.9
Peoria	35.2
Unincorporated Yavapai County	24.2

Source: Center for Business Research, College of Business, Arizona State University

The 12 leading reporting areas, shown in Table 1, accounted for $1.2 billion or 88 percent of the reported third quarter 1987 activity. The impact of major projects is evident in the first two cities, Phoenix and Scottsdale.

At $1.1 billion (more than 75 percent of the state total), construction activity in Maricopa County remained virtually unchanged from the second quarter level ($1.1 billion). Development activity in Pima County increased to $154.7 million – 11 percent of total activity – from $151.4 million in the second quarter. With 3 percent of the total activity, Yavapai County was the next most active area, recording $44.8 million in new projects.

SECTORAL ACTIVITY

Residential

In response to increasing interest rates, the single family sector continued to decline in Maricopa County, to 4,427 permits, from 5,217 permits in the second quarter and 6,093 permits one year earlier. Through the first three quarters of 1987, only 14,886 homes were authorized, while 19,715 single family permits were recorded for the same period of 1986. While most cities reported declines in comparison to third quarter 1986, the cities of Gilbert (325 from 261 permits) and Scottsdale (506 from 495 permits) showed increases.

The single family sector in Pima County also declined slightly, to 1,093 permits in the third quarter, from 1,147 permits in the second quarter and 1,135 permits one year earlier. Through third quarter 1987, a total of 3,372 homes were authorized, while 3,764 homes were permitted for that period of 1986. With 75 percent of the permitted homes, unincorporated Pima County continued to be the leading area of new home development.

Although the 1,355 residential permits issued for the rest of Arizona surpassed the third quarter 1986 total (1,337 permits), the number was down from the 1,484 permits recorded during the second quarter. Primary areas of new home development were unincorporated Coconino County (114 permits), Lake Havasu City (152 permits), Prescott (94 permits), and unincorporated Yavapai County (252 permits).

Commercial

With 3,324 authorized units, the apartment sector in Maricopa County improved significantly over the 1,264 units of the second quarter but was well below the 4,324 units of third quarter 1986. Even with greater third quarter activity, the 1987 year-to-date of 6,366 units was

TABLE 2
KEY SECTOR CONSTRUCTION ACTIVITY
(Third Quarter 1987, Second Quarter 1987, and Third Quarter 1986)

			COMMERCIAL							
	SINGLE FAMILY		APARTMENTS[a]		OFFICE BUILDINGS[b]		RETAIL STORES[c]		INDUSTRIAL	
Maricopa County	*Number of Permits*	*Dollar Value (000)*	*Number of Permits*	*Dollar Value (000)*	*Number of Permits*	*Dollar Value (000)*	*Number of Permits*	*Dollar Value (000)*	*Number of Permits*	*Dollar Value (000)*
Third Quarter 1987	4,472	426,644	212	156,413	108	115,488	191	78,091	59	41,281
Second Quarter 1987	5,217	434,060	64	50,191	90	165,161	183	63,579	72	45,474
Third Quarter 1986	6,093	464,715	222	123,287	63	41,718	286	84,856	79	32,531
Pima County										
Third Quarter 1987	1,093	74,082	27	10,107	11	9,308	28	11,090	6	728
Second Quarter 1987	1,147	70,716	13	8,058	13	4,105	23	15,244	14	2,778
Third Quarter 1986	1,135	74,234	41	30,511	22	4,403	36	14,699	4	349
Rest of Arizona										
Third Quarter 1987	1,355	85,350	10	4,726	23	3,328	54	9,864	16	3,479
Second Quarter 1987	1,484	93,903	11	3,287	33	4,436	61	10,065	18	1,765
Third Quarter 1986	1,337	79,676	44	15,294	41	7,121	85	16,135	27	3,036
Arizona Total										
Third Quarter 1987	6,920	586,076	249	171,246	142	128,124	273	99,045	81	45,488
Second Quarter 1987	7,848	598,679	88	61,536	136	173,702	267	88,888	104	50,017
Third Quarter 1986	8,565	618,624	307	169,093	126	53,243	407	115,690	110	35,917

[a] Five or more housing units

[b] Office, bank, medical and professional buildings

[c] Shopping centers and other mercantile buildings

Source: Center for Business Research, College of Business, Arizona State University

units permitted during the first three quarters of 1986. Primary areas of third quarter apartment activity were Scottsdale (1,213 units), Phoenix (1,016 units), and Mesa (533 units). Pima County recorded 490 units, all in Tucson. Comparing year-to-date totals, Pima County authorized 1,550 units in 1987, in contrast to 3,992 units for 1986. Leading areas for the rest of Arizona in the third quarter were Prescott (72 units), Kingman City (40 units) and Cottonwood (31 units).

In Maricopa County, the retail sector reversed its quarterly pattern of decline, with 191 permits ($78 million), but is still not near the 286 permits ($85 million) recorded during third quarter 1986. The cities of Phoenix (40 permits, worth $36 million) and Scottsdale (17 permits, val-

areas of new retail development. Retail development in Pima County followed a similar pattern, with most of the permits issued in Tucson (10 permits, worth $9 million). With 54 permits ($9.9 million), retail development continued to decrease throughout the rest of Arizona.

Hotel/motel development activity declined significantly, to only 19 permits ($5.7 million) from 25 permits ($52 million). The city of Phoenix accounted for 17 permits, valued at $4 million, followed by Casa Grande with one permit at $1.7 million.

Office building permits issued in Maricopa County increased from the second quarter total (108 from 90 permits). Although the dollar value declined ($115 from $165 million), it remained well above the $42 million value of 63 permits issued one year

40 permits ($83 million); however, only two permits accounted for $59 million of the total. Scottsdale was next, with eight permits ($21 million), but one permit represented $15 million of the total activity. Pima County recorded a strong increase in office building activity, jumping to $9.3 million (11 permits) from $4 million (13 permits) in the second quarter. Tucson issued 10 permits, valued at $9 million.

Industrial

Industrial development activity in Maricopa County continued to be very stable, with 59 permits ($41 million) issued during the third quarter. The year-to-date total of $117 million is comparable to the dollar value for the same period of 1986, at $120 million. Industrial activity was especially evident in Phoenix (31 permits; $25 million), Chandler (6 permits; $8 million), and Mesa (8 permits; $3 million).

Industrial development in Pima County was under $1 million, well below the second quarter total of $3 million. In contrast, industrial activity increased throughout the rest of Arizona, to $3.5 million (16 permits) from $1.7 million (18 permits). Although the amount of activity improved, no reporting unit issued a permit in excess of $1 million.

Other

Construction of educational facilities continued to lead this diverse sector, with third quarter projects valued at $51 million, more than the $43 million recorded during the second quarter but less than the $56 million reported one year earlier. Construction permits for health care facilities increased to $30 million in value from $12 million, largely due to Scottsdale issuing one permit for $28 million.

LOOKING AHEAD

The fundamental concern for the future is uncertainty related to volatility in the stock market, interest rates and other key economic factors. When no reasonable trend is discernible, considerable concern about the future develops. Hence, businesses and individuals alike tend to be more cautious about making major decisions such as moving into new space or buying a new home.

Due to this underlying concern, real estate development activity for 1988 is not expected to improve. Since the long-term outlook for Arizona is very promising, developers

TABLE 3
ARIZONA HOUSING UNITS AUTHORIZED
Third Quarter 1987

	One Family	*Mobile Homes*	*Duplex*	*3-4 Family*	*5 or More*	*Total*
APACHE COUNTY	18	34	0	0	0	52
Percent Change, Previous Year	-44	42	—	—	—	-7
Percent Change, Previous Qtr.	-56	-3	—	—	—	-32
COCHISE COUNTY	141	14	2	0	0	157
Percent Change, Previous Year	38	-86	0	—	—	-30
Percent Change, Previous Qtr.	3	-90	—	—	—	-44
COCONINO COUNTY	131	89	0	0	0	220
Percent Change, Previous Year	-40	-29	—	—	—	-43
Percent Change, Previous Qtr.	-31	-6	—	—	—	-24
GILA COUNTY	74	57	0	0	0	131
Percent Change, Previous Year	-10	-14	—	—	—	-11
Percent Change, Previous Qtr.	7	-12	—	—	—	-6
GRAHAM COUNTY	9	54	0	0	0	63
Percent Change, Previous Year	29	2	—	—	—	5
Percent Change, Previous Qtr.	-40	17	—	—	—	3
GREENLEE COUNTY	0	0	0	0	0	0
Percent Change, Previous Year	—	—	—	—	—	—
Percent Change, Previous Qtr.	—	—	—	—	—	—
LA PAZ COUNTY	3	18	0	0	0	21
Percent Change, Previous Year	—	—	—	—	—	—
Percent Change, Previous Qtr.	200	6	—	—	—	17
MARICOPA COUNTY	4,472	280	26	49	3,324	8,151
Percent Change, Previous Year	-27	-15	-73	-75	-23	-26
Percent Change, Previous Qtr.	-14	-21	333	17	163	18
MOHAVE COUNTY	305	222	8	4	60	599
Percent Change, Previous Year	30	-8	300	—	-76	-17
Percent Change, Previous Qtr.	2	12	—	0	-49	-3
NAVAJO COUNTY	88	28	0	0	0	116
Percent Change, Previous Year	-31	0	—	—	—	-36
Percent Change, Previous Qtr.	-34	-22	—	—	—	-33
PIMA COUNTY	1,093	99	8	7	490	1,697
Percent Change, Previous Year	-4	-61	-73	-50	-65	-40
Percent Change, Previous Qtr.	-5	161	-64	-42	106	16
PINAL COUNTY	78	111	0	8	16	213
Percent Change, Previous Year	-30	-52	—	33	—	-40
Percent Change, Previous Qtr.	-14	-13	—	—	—	-1
SANTA CRUZ COUNTY	34	0	2	4	6	46
Percent Change, Previous Year	0	—	—	—	—	28
Percent Change, Previous Qtr.	-75	—	—	—	—	-67
YAVAPAI COUNTY	404	137	8	10	103	662
Percent Change, Previous Year	-4	29	0	-67	-31	-7
Percent Change, Previous Qtr.	5	18	300	-89	544	9
YUMA COUNTY	72	94	0	6	0	172
Percent Change, Previous Year	11	4	—	—	—	-52
Percent Change, Previous Qtr.	38	96	—	—	—	72
TOTAL, ARIZONA	6,920	1,237	54	88	4,001	12,300
Percent Change, Previous Year	-20	-25	-65	-65	-38	-28
Percent Change, Previous Qtr.	-13	-6	59	-44	144	11

Note: A dash indicates that a percent change could not be calculated because at least one period had no activity.

Source: Center for Business Research, College of Business, Arizona State University

These projects will not open for several years yet, when the market is expected to be better. Such a pattern means that the market is driven not by current market forces but by expected market conditions.

Since most major projects are retail and office building developments, residential activity will not improve unless economic conditions improve – primarily interest rates and consumer confidence. Innovative financing arrangements can lower the effective interest rate, but only better economic conditions will strengthen consumers' confidence and increase their desire to buy a new home. Even though Arizona has great growth potential, the extent to which major projects can Thus, the level of activity could be up-and-down during the next year.

The fundamental factors that will affect all aspects of the construction industry are the performance of the Arizona economy and the future economic outlook. These factors will be especially important to activity in the Phoenix metropolitan area. While many have come to expect the economy to continue performing at the superlative level of the last few years, reality calls for the economy to grow at a much slower pace. With this expected sluggishness, nothing would greatly stimulate construction activity in the near-term.

The 1987 pace continues to vary little from that of 1986. Thus, 1987 should end as a good year, definitely industry. No strong forces are evident that would propel the industry to new levels in 1988. The impact of the tremendous stock market decline can not be discerned at this time. Hence, great uncertainty continues to buffet the industry and the real estate market. Expectations continue that construction activity will be slow and uneven as developers carefully analyze current and, especially, future strengths and weaknesses of the market.

– Jay Q. Butler

Dr. Butler is Associate Professor of Real Estate and Director of the Arizona Real Estate Center in the ASU College of Business.

TABLE 4
ARIZONA BUILDING PERMITS
Third Quarter 1987

	Residential*		Commercial		Industrial		Other		Total	
	Number of Permits	*Dollar Value (000)*	*Number of Permits*	*Dollar Value (000)*	*Number of Permits*	*Dollar Value (000)*	*Number of Permits*	*Dollar Value (000)*	*Number of Permits*	*Dollar Value (000)*
APACHE COUNTY	77	1,991	5	109	1	79	8	279	89	2,458
Percent Change, Previous Year	10	8	150	1,717	—	—	-45	-78	7	-22
Percent Change, Previous Qtr.	-21	-38	25	-49	—	—	-25	336	-19	-29
COCHISE COUNTY	343	8,621	23	1,270	0	0	192	544	558	10,436
Percent Change, Previous Year	-10	3	156	-64	—	—	9	-87	-2	-36
Percent Change, Previous Qtr.	-27	-17	10	-17	—	—	-31	-17	-27	-17
COCONINO COUNTY	444	11,618	23	1,081	2	636	137	4,381	606	17,716
Percent Change, Previous Year	-28	-35	-12	-83	-50	25	-4	28	-23	-37
Percent Change, Previous Qtr.	-8	-30	-61	-47	0	21	1	705	-9	-10
GILA COUNTY	259	6,335	19	513	0	0	44	531	322	7,379
Percent Change, Previous Year	-17	5	73	-1	—	—	-6	-70	-13	-12
Percent Change, Previous Qtr.	2	8	12	-9	—	—	-38	-86	-6	-27
GRAHAM COUNTY	114	1,646	10	4,455	1	10	17	25	142	6,136
Percent Change, Previous Year	10	19	-9	1,127	—	—	0	-75	8	233
Percent Change, Previous Qtr.	-3	-7	-29	1,045	0	25	-45	-92	-13	146
GREENLEE COUNTY	0	0	0	0	0	0	0	0	0	0
Percent Change, Previous Year	—	—	—	—	—	—	—	—	—	—
Percent Change, Previous Qtr.	—	—	—	—	—	—	—	—	—	—
LA PAZ COUNTY	41	390	7	1,140	1	474	19	48	68	2,052
Percent Change, Previous Year	215	1,200	250	583	—	—	-39	28	48	1,015
Percent Change, Previous Qtr.	-31	-17	40	71	-50	119	19	-11	-17	46
MARICOPA COUNTY	6,676	449,061	654	387,970	59	41,281	5,612	211,738	13,201	1,090,050
Percent Change, Previous Year	-18	-8	5	24	-25	27	-13	16	-15	7
Percent Change, Previous Qtr.	-16	-8	36	10	-18	-9	-25	8	-18	0
MOHAVE COUNTY	824	24,787	35	3,420	2	867	346	4,026	1,207	33,100
Percent Change, Previous Year	-17	24	-20	-76	-33	76	34	5	-7	-14
Percent Change, Previous Qtr.	-7	9	-19	-59	-60	171	-14	21	-10	-5
NAVAJO COUNTY	171	6,355	9	636	0	0	28	428	208	7,621
Percent Change, Previous Year	-34	-18	29	-14	—	—	-82	-53	-51	-21
Percent Change, Previous Qtr.	-46	-41	29	84	—	—	-46	60	-45	-33
PIMA COUNTY	1,883	79,456	79	31,208	6	729	1,965	43,320	3,933	154,711
Percent Change, Previous Year	-14	0	-29	-42	50	109	34	13	4	-10
Percent Change, Previous Qtr.	1	1	-8	-4	-57	-74	25	16	11	2
PINAL COUNTY	274	7,838	35	6,065	4	397	130	1,311	443	15,611
Percent Change, Previous Year	-40	-17	40	-25	33	38	-40	-54	-37	-25
Percent Change, Previous Qtr.	-15	-16	-13	-15	300	198	3	-76	-6	-29
SANTA CRUZ COUNTY	39	1,741	5	567	0	0	11	89	55	2,397
Percent Change, Previous Year	-13	-27	150	2,000	—	—	22	29	-2	-4
Percent Change, Previous Qtr.	-73	-79	150	2,081	—	—	-38	-20	-67	-73
YAVAPAI COUNTY	692	32,769	31	4,443	2	327	295	7,270	1,220	44,829
Percent Change, Previous Year	16	9	-47	-40	-71	-37	19	68	13	8
Percent Change, Previous Qtr.	15	9	-47	-23	0	99	16	168	12	15
YUMA COUNTY	232	7,307	33	4,299	3	689	156	1,877	423	14,172
Percent Change, Previous Year	1	13	-8	-44	-40	-28	5	-78	1	-40
Percent Change, Previous Qtr.	32	37	27	-14	50	328	-3	-86	16	-47
TOTAL, ARIZONA	12,249	639,934	1,168	447,376	81	45,488	8,977	275,867	22,475	1,408,667
Percent Change, Previous Year	-16	-8	1	7	-26	27	-4	9	-11	2
Percent Change, Previous Qtr.	-12	-8	16	7	-22	-9	-15	3	-12	-1

*Includes mobile homes

Note: A dash indicates that a percent change could not be calculated because at least one period had no activity.

Source: Center for Business Research, College of Business, Arizona State University

Construction, an especially cyclical industry, is particularly important to a rapidly growing area such as metropolitan Phoenix. As a "basic" industry, its periodic swings have considerable impact – both positive and negative – on the rest of the economy. This cyclicality generally is undesirable.

Population growth in the Phoenix area also is highly cyclical, but reasonably predictable, based on economic conditions locally and elsewhere. In the longer term, general demographic factors, also foreseeable, play a role in determining the level of population growth.

The quantity of housing units absorbed correlates with the size of the population gain. If population growth can be predicted, then the general demand for new housing units also can be projected. Limiting construction to this level would reduce both the cyclicality and the resulting disequilibriums, such as high vacancy rates, that now plague the Phoenix metropolitan area.

CONSTRUCTION CYCLICALITY

The cyclicality of the construction industry is evident in Figure I. This sector accounts for 6 to 8 percent of local economic activity, depending on timing in the economic cycle, compared to not quite 5 percent nationally. Further, construction is a goods-producing industry, traditionally considered to be more important than service-support industries.

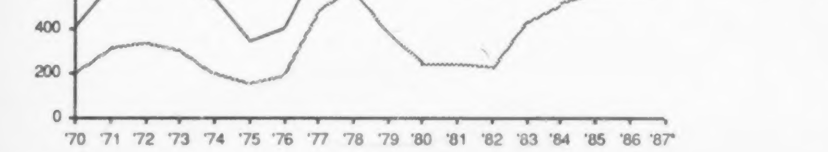
Thus, while construction benefits the metro Phoenix economy, its extreme cyclicality – more than that of any other industry – adds volatility and extremes to the general economy. On a micro level, its downsides contribute to unemployment, foreclosures and bankruptcies.

POPULATION GROWTH

Most of the Phoenix area's growing population results from net in-migration, which is highly cyclical. The majority of people who move to and from the area are young, relocating primarily for employment and economic reasons. The periodicity of these flows results from the cyclicality of the economy, in particular of new job creation.

Aside from this cyclicality, demographic factors help to determine the level of both net natural increase and net in-migration. While the excess of births over deaths follows an upward trend due to the growing size of the local population, the net number of people moving to the Valley has shown no trend since the late 1960s. The record inflows of 1984-86 resulted from short-term economic factors, such as poor economic conditions in resource-dependent states like Texas and the construction boom in the Phoenix area. After the late 1980s, the trend in net in-migration to the Phoenix area will be toward slightly lower levels (see the March 1986 and January 1987 issues of *Arizona Business*).

FIGURE I
INFLATION-ADJUSTED VALUE OF BUILDING PERMITS ISSUED
Maricopa County



*Projected

Source: Center for Business Research, College of Business, Arizona State University

RECENT ECONOMIC DEVELOPMENTS

The cyclicality and interplay of the construction industry, general economy and net in-migration are illustrated in the current economic cycle. Construction boomed from 1983 into 1986. At the same time, the economic growth rate easily exceeded its long-term average, and net in-migration reached record levels.

For some types of construction – apartments in particular – a 1981 tax law change fueled spectacular growth, with high vacancy rates resulting. The large number of vacancies, in conjunction with another tax change, finally caused construction activity to slow during 1986. After rising rapidly during 1983-85, construction employment began to decline in spring 1986.

The effects of laid-off construction workers and shrinking purchases of construction materials rippled through the economy during 1986. By the fourth quarter, new job creation in other industries had slowed sharply. Since people continued to move to the area, the unemployment rate jumped.

During the next few months, news of the scarcity of jobs and high unemployment rate spread; at the same time, construction workers were leaving. Net in-migration plunged from more than 15,000 people per quarter to a subpar level of 6,000 people by second quarter 1987.

Other factors contributed to the slower economy, but swings in the construction industry were the primary cause. Whereas growth of the national economy has been relatively steady at just below 3 percent per year – the long-term average – since late 1984, the local economy continued to expand at above average rates until late 1986. Growth then fell below the 5.7 percent norm, though it remained stronger than the national rate.

Thus, the construction industry's cyclicality helped the local economy to continue its rapid expansion into early 1986. By late 1986, however, the same industry helped push the economy into a "growth recession." Meanwhile, the construction boom has created high vacancy rates that will be difficult to resolve, slowing future growth of both the industry and the local economy.

HOUSING CONSTRUCTION AND VACANCIES

Despite record levels of population growth and housing absorption, the overall housing vacancy rate has increased throughout the current economic expansion because of extraordinarily high levels of housing construction. Most significant was the number of apartment units constructed, which exceeded the number of single family homes for the first time (see Figure II).

According to the Phoenix Metropolitan Housing Study, the single family housing market has stayed in equilibrium throughout the current expansion, maintaining its typical 1 percent vacancy rate. Vacancies of townhouses dropped during the expansion, to a historically low 2 percent. In contrast, apartment vacancies doubled, from the typical 6 to 7 percent to a record 13 percent. The overall vacancy rate rose from its average 3 percent to a record 5 percent, representing more than 40,000 vacant housing units.

Given current levels of population growth, it would take more than one year to absorb these units, even if no additional units were constructed. These numbers imply that an excess of 15,000 to 20,000 housing units were constructed during the expansion, virtually all of them apartments. This overbuilding occurred despite record levels of multifamily unit absorption.

These absorption figures raise significant questions. Traditionally, Americans have selected single family homes as their housing of choice. Yet, from mid-1983 through mid-1986 more apartment units were absorbed than single family homes in the Phoenix area. A change in housing preferences seems unlikely. Rather, temporary market conditions probably caused this phenomenon: a wide selection of new apartments, filled with amenities and offered at reduced rents, at a time of steady or rising mortgage payments. Presumably, many apartment dwellers are young professionals since this is the largest group of migrants. A key issue for new home builders and apartment owners is how many of these renters will move to single family homes – and how soon.

Lower absorption of apartment units during 1986-87, coupled with an increase in the number of homes sold at a time of declining net in-migration, suggests that some movement from apartments to single family homes already has occurred. This movement probably was stimulated by improved single family housing affordability.

SHORT-TERM OUTLOOK

Construction of new housing units has declined, but so have population inflows and housing absorption. Population gains dropped from a high of 88,000 in fiscal 1985-86 to 68,000 in 1986-87; the projected level for 1987-88 is 62,000. New housing units authorized declined more, from 57,000 in 1983-84 to 31,000 in 1986-87 and a projected 26,000 in 1987-88. In particular, construction and absorption of multifamily units have plummeted.

Given these short-term projections and the assumption that housing absorption will continue its typical relationship with population gains, the overall housing vacancy rate should peak this winter; the number of new housing units completed should be less than the number absorbed. However, improvement during the rest of 1988 is likely to be modest. For example, by the end of the year, apartment vacancies probably will decline only to 12 percent, still higher than at anytime prior to 1986. (This forecast assumes stronger apartment absorption than experienced during the first half of 1987 and authorization of approximately 7,500 additional multifamily units during 1988.)

LONG-TERM OUTLOOK

Two non-economic issues complicate the apartment vacancy question. The first is the aging of the American population. Young people are a primary absorber of apartment units, but this age group is shrinking nationally as the "baby-bust" generation replaces the "baby-boom" era. Second, as discussed above, an unusual number of apartment dwellers may soon be moving into single family homes.

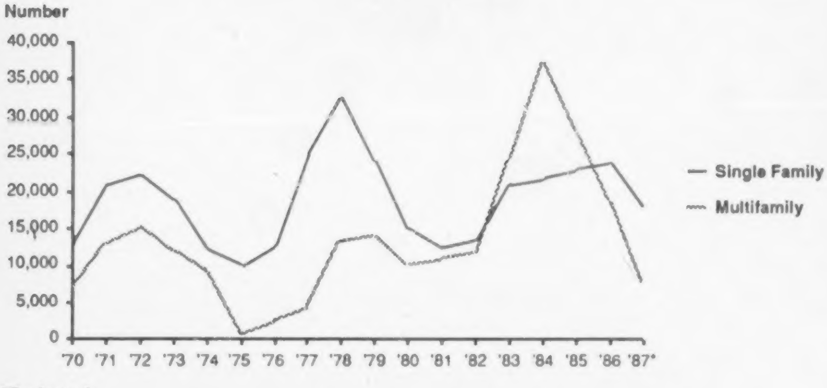
Economically, the high vacancy rates in apartments and other types of commercial buildings should reduce construction activity during the next few years. This drag on the economy, coupled with national and international economic conditions, will result in a local economy hard-pressed to exceed its average growth rate through 1991. Should a recession occur, as seems likely by 1989 or 1990, total economic growth through 1991 will be subpar.

Thus, it is relatively optimistic to expect net in-migration and housing absorption to match their typical levels through 1991. Even if they do, given the 15,000 or more excess housing units currently marketed, construction of new housing units can total only approximately 28,000 per year, if the overall housing vacancy rate is to return to typical levels by the end of 1991.

Since high housing vacancy rates are limited to the apartment sector and since absorption of apartment units probably will be subpar during the next few years, very few apartment units will need to be constructed – less than in any year since 1970 except 1974-77. Even then, relatively high apartment vacancy rates are likely to persist for years.

– Tom R. Rex
Research Manager

FIGURE II
Housing Units Authorized
Maricopa County



*Projected

Source: Center for Business Research, College of Business, Arizona State University

Five-Year Valley Inflation Rate Just 18 Percent

Inflation in the Phoenix metropolitan area totaled only 18.2 percent during the five years following the end of the last recession in 1982, much less than the rate during the expansion of the late 1970s (see Figure I).

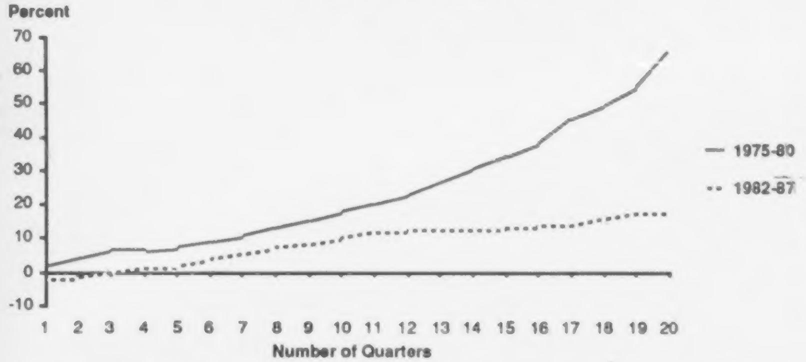
This overall (all-items) inflation rate represents the average rate for all households in the Phoenix area. Theoretically, the rate for any individual household could be much different, based on particular buying patterns. However, during the last five years, the variation in inflation by category of the metropolitan Phoenix CPI has been relatively mild and sometimes occurred in staple items, purchased by nearly all consumers. Thus, individual buying patterns had little effect on the inflation rate experienced by most consumers during the last five years.

1982-87 INFLATION

Inflation in the three largest categories of the CPI – food and beverages, housing, and transportation – was not much different from the all-items rate (see Figure II). The relatively low rate for housing, the largest category, was offset by much higher rates in some of the less important categories, especially medical care.

Inflation in the food and beverages category matched the all-items figure as did the major subcategories, food at home and food away from home. Among the five groups of the food-at-home category, however, more variation occurred (see Table 1).

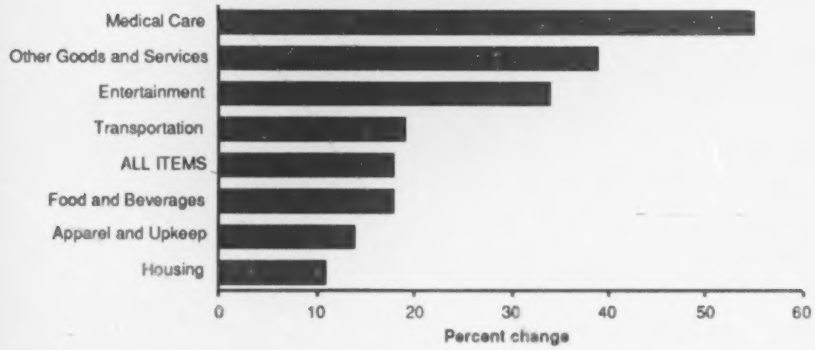
FIGURE I
CUMULATIVE INFLATION, 1975-80 AND 1982-87
Metropolitan Phoenix CPI



Note: Quarters span a five-year (20-quarter) period, beginning first quarter 1975 (solid line) and third quarter 1982 (dotted line).

Source: Center for Business Research, College of Business, Arizona State University

FIGURE II
INFLATION IN MAJOR CATEGORIES
Third Quarter 1982 through Third Quarter 1987
Metropolitan Phoenix CPI



Source: Center for Business Research, College of Business, Arizona State University; in cosponsorship with Valley National Bank.

Housing costs climbed only 11 percent, with subpar gains in each of the major subcategories: shelter, fuel and other utilities, and household furnishings and operations. Piped gas rates were no higher in 1987 than in 1982, and charges for long-distance telephone calls declined, though basic telephone charges went up at nearly the average rate. Big increases occurred, however, in local services: water and sewerage maintenance and garbage/trash collection.

Transportation cost increases differed widely by subcategory. Within the private transportation category, which rose 20 percent, inflation varied from 107 percent for insurance to -27 percent for finance charges. Thus, in terms of monthly payments, the purchase of an automobile on credit was not much more expensive in 1987 than in 1982, despite jumps in new and used car prices.

In the medical care, entertainment and other goods and services categories, prices advanced significantly in each subcategory. Medical care inflation totaled 55 percent despite relatively small advances in the last few quarters. Much of the total gain resulted from very high inflation in health care insurance premiums in 1983-84.

INDIVIDUAL INFLATION RATES

No household is likely to purchase goods and services in the exact proportions assumed in the CPI. In a few cases, the spending pattern may be sharply different, causing an inflation rate significantly different from the official rate.

Such variation was more common in the late 1970s when home ownership costs were advancing at more than 20 percent per year. Since the last recession, inflation has been much lower and not as variable. As a result, the cumulative 1982-87 inflation rate for the vast majority of households was in a narrow range of approximately 15 to 21 percent. To be on the high or low end of the range, a household would have to exercise rather unusual buying habits.

To see how a higher inflation rate might have been realized, assume an individual owned an all-electric home that was completely furnished prior to 1982. The individual did not phone calls, or use public transportation. Even then, this hypothetical 1982-87 inflation rate would not be 21 percent. To get a much higher rate, an individual would have to have consumed very large quantities of medical care or other high-inflation items.

For a lower inflation rate, assume a renter who did not own a car, smoke, go to school, eat fresh fruits and vegetables or participate in entertainment activities. This hypothetical case would result in a 15 percent inflation rate. To get a much lower rate, the assumption must be made that the individual purchased few medical care goods or services. However, just because he or she did not go to a hospital between 1982 and 1987 does not mean that these cost increases are irrelevant. If hospital services are now required, the individual will bear the full brunt of five years' worth of inflation. Categories in which a household may eventually purchase a good or service should not be excluded from their calculated inflation rate.

Thus, while the concept is valid that the CPI may not be an accurate measure of a specific household's inflation rate, in reality, few households have experienced a much variant rate since the last recession.

– Tom R. Rex
Research Manager

METROPOLITAN PHOENIX CONSUMER PRICE INDEX
Selected Categories, Third Quarter 1982 - Third Quarter 1987

Category	Percent Change	1987 Relative Importance
ALL ITEMS	18	100.0
Food and Beverages	18	18.7
Food at Home	18	11.3
Cereal and Bakery Products	31	1.5
Meats, Poultry, Fish, and Eggs	6	3.3
Dairy Products	11	1.5
Fruits and Vegetables	34	1.9
Other Food at Home	18	3.1
Food Away from Home	18	6.1
Alcoholic Beverages	24	1.3
Housing	11	39.5
Shelter	10	25.8
Rent of Dwelling	16	7.8
Fuel and Other Utilities	15	6.4
Electricity	11	2.3
Piped Gas	0	1.7
Other	21	2.1
Household Furnishings/Operations	10	7.2
Apparel and Upkeep	14	4.8
Transportation	19	21.2
Private Transportation	20	19.6
New Car	34	2.7
Used Car	29	4.5
Motor Fuels	20	5.5
Vehicle Parts and Equipment	-1	0.7
Vehicle Maintenance and Repair	29	2.4
Vehicle Insurance	107	2.5
Vehicle Finance Charges	-27	0.6
Public Transportation	9	1.6
Medical Care	55	6.9
Professional Services	35	3.0
Hospital Services	44	0.5
Health Insurance	83	2.4
Entertainment	34	4.6
Other Goods and Services	39	4.3

Source: Center for Business Research, College of Business, Arizona State University; in cosponsorship with Valley National Bank.

Arizona Industrial Growth Varies Substantially

While some Arizona industries grew by more than two-thirds between 1982 and 1986, others declined. Business services and real estate led the growth during this post-recessionary period.

The findings in this article are based on revised personal income and employment data released by the U.S. Department of Commerce, Bureau of Economic Analysis.

OVERALL MEASURES

Arizona personal income reached $44.7 billion in 1986, 1.3 percent of the U.S. total. On a per capita basis, the state's personal income ($13,474) was only 92 percent of the national average. Gains in both Arizona and U.S. personal income since 1983 (not inflation-adjusted) are shown in Figure I. Arizona's more rapid personal income growth is due primarily to the state's large population gains.

Earnings by place of work – wages and salaries, other labor income and proprietors' income – made up 72 percent of Arizona's personal income in 1986. Transfer payments and dividends, interest and rent accounted for the remainder. Of these categories, proprietors' income increased most swiftly between 1982 and 1986 (77 percent), and transfer payments advanced least rapidly (37 percent). Earnings by place of work rose 53 percent, and total personal income was up 50 percent.

Total employment in Arizona reached 1.69 million in 1986, up 30 percent since 1982. Eighty-five percent of the employed were wage and salary workers; the remainder were proprietors. Arizona's rate of growth more than doubled the national average in each year from 1983 through 1986 (see Figure II). The jump in the number of proprietors (42 percent) exceeded the increase in wage and salary workers (28 percent).

MAJOR INDUSTRIES

Services, Arizona's largest industry in 1986, accounted for 23 percent of personal income and 27 percent of total employment. Depending on the measure used (personal income or employment), trade, government and manufacturing ranked next largest. Compared to their U.S. industrial counterparts, Arizona's construction industry was much larger, and its manufacturing industry was much smaller.

During the 1983-86 expansionary period, Arizona growth was most rapid in the finance, insurance and struction industry, followed by the services industry. The mining industry declined, and transportation, communications and public utilities (TCPU), agriculture, and government expanded relatively slowly. Compared to the national average, Arizona's manufacturing and construction industries stood out as fast growers. In contrast, Arizona's mining industry declined more than its national counterpart, and the state's agriculture industry expanded more slowly.

SECONDARY INDUSTRIES

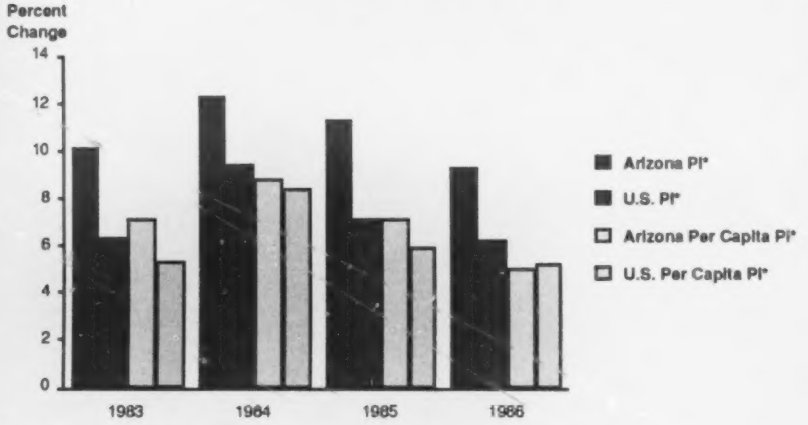
Several Arizona industries provide a much smaller share of employment and personal income than their national counterparts: oil and gas mining; non-durable manufacturing as a whole, as well as several of its components; some types of furniture, fabricated metals, and motor vehicles; and educational services. In contrast, relatively large industries in Arizona include metal mining; some construction sectors, including heavy construction and special trades; manufacturing of electrical equipment and transportation equipment other than motor vehicles; real estate; and lodging services.

Compared to other Arizona industries, fast growers from 1982 through 1986 include the construction industries of general building and special trades; manufacturing of wood products, transportation equipment other than motor vehicles, and stone, clay and glass products; real estate; business services; and auto repair and services. Declining or slow-growing industries include farming; metal mining; manufacturing of food products, non-electrical machinery chandise retail stores; communications; and the military.

Growth rates were particularly high, in comparison to their national counterparts, in heavy construction and in several manufacturing industries, including instruments and stone, clay and glass products. In several industries, growth was particularly slow, or declines were greater than nationally: farming, metal mining, communication, general merchandise retail stores, and the military.

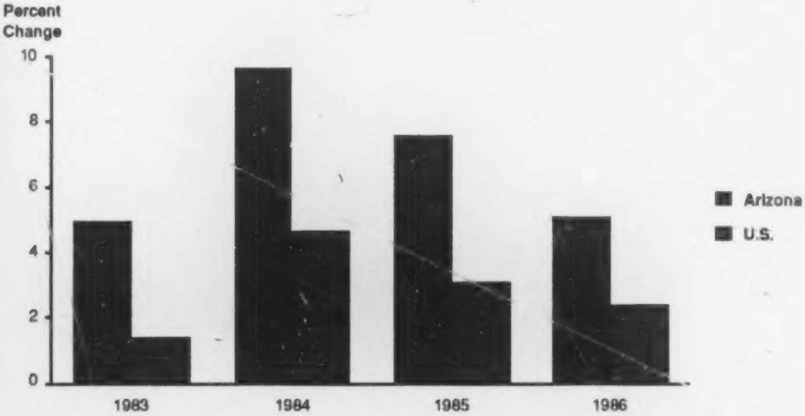
Growth between 1982 and 1986 did not necessarily match the pattern over a longer span of time, e.g., 1970-86. Construction, for example, advanced at only an average rate over this longer time span. The rapid growth between 1982 and 1986 was a function of the industry's cyclicality; the declines of 1987 will drop construction from the ranks of the leaders during the current expansion. Despite recent declines, communication's growth for the long term is not far below average.

FIGURE I
GROWTH IN PERSONAL INCOME



*PI = Personal Income

FIGURE II
GROWTH IN TOTAL EMPLOYMENT



Source (Figures I and II): U.S. Department of Commerce, Bureau of Economic Analysis

SUMMARY

No Arizona industry that grew rapidly between 1982 and 1986, when compared to other Arizona industries, also surpassed its national counterpart's growth rate. Manufacturing of stone, clay and glass products is an exception, but this industry is responsible for only 0.5 percent of Arizona's employment and personal income. Business services and real estate expanded the fastest, but they mirrored the national pattern. Arizona's manufacturing industry grew much faster than its national counterpart, but slower than the average Arizona industry.

On the negative side, farming, mining and communications stood out as declining industries, shrinking faster – and already smaller – than their national counterparts. General merchandise retail stores and the military both grew more slowly than their national counterparts and the average Arizona industry.

These findings verify that the state has a diversified economy, not especially dependent on any one industry. Arizona's economy generally follows the national pattern, with the same high-growth industries, all service-related.

– Tom R. Rex
Research Manager

The Arizona economy posted another month of solid growth in November. All indicators were positive, as in the previous months of 1987. Lead times lengthened, inventory increased, and new orders grew at a robust pace. The overall growth rate was only slightly lower than in October, showing that the Arizona economy survived the declines in the financial market nicely.

While the economy may not yet have felt the full effect of the stock market plunge, the year will end on a strong note. The acceleration in growth probably has been diminished somewhat, but continued advances in new orders, inventories, and employment will enable the economy to finish its fifth year of solid, sustained growth and to start 1988 from a position of strength.

PRICES

Prices paid for purchased items went up in November at a somewhat higher rate than in October – the second largest advance of 1987. The increase rate in each month of 1987 has been greater than in all but one month of 1986. While inflationary pressures are building, the increase rate is not accelerating at an uncontrolled pace.

DELIVERY TIME

Delivery time on vendor shipments continued to stretch, but at a slightly lower rate than in September or October. This trend signals that vendor backlogs remain healthy.

INVENTORY LEVELS

Inventory levels of purchased materials rose at a rate almost three times greater than in October. Inventory has grown in all but one month of 1987. Firms are building the stocks needed to accommodate the increased flow of business – a key factor stimulating growth.

NEW ORDERS

New orders accelerated in November at the same strong rate as in October. Growth in new orders followed a consistent trend over the first 11 months of 1987, suggesting a further production hike in December.

PRODUCTION

Production advanced again, but at a rate well below that of the previous month and the lowest since December 1986. This slower growth rate is surprising, in light of the strong new order picture. It may have been a reaction to the decline in the financial markets, as management anticipated slower demand that did not materialize.

EMPLOYMENT

Employment was up in November, but the pace was not as brisk as in October and lower than in all but two months (January and September) of 1987. November was the 11th consecutive month of employment growth.

PURCHASES

Purchases of materials and supplies rose at a rate almost identical with the previous month.

– **Harold Fearon**

Dr. Fearon is the National Association of Purchasing Management Professor in the ASU College of Business.

Arizona Purchasing Survey

Now in its 26th year of monthly reporting, Dr. Harold Fearon's survey of Arizona business conditions utilizes data gathered at the close of each month from members of the purchasing management associations of Arizona and southern Arizona. They indicate the direction - higher, unchanged, or lower - of seven key measures of economic activity in the month just ended. These purchasing managers deal daily with supply, demand, and price factors in the marketplace; their aggregate readings have accurately charted the state's economic course for two decades, providing timely data on turning points.

TABLE 1
NOVEMBER PURCHASING SURVEY

	Percent of Purchasing Managers Indicating Each Response (November compared to October)		
Key Indicators	*Higher*	*Same*	*Lower*
Prices paid for major commodities	44	53	3
Delivery time from vendors	42	49	9
Purchased materials inventory level	33	42	25
New orders received	43	36	21
Production	32	43	25
Employment	22	66	12
Purchases	43	35	22

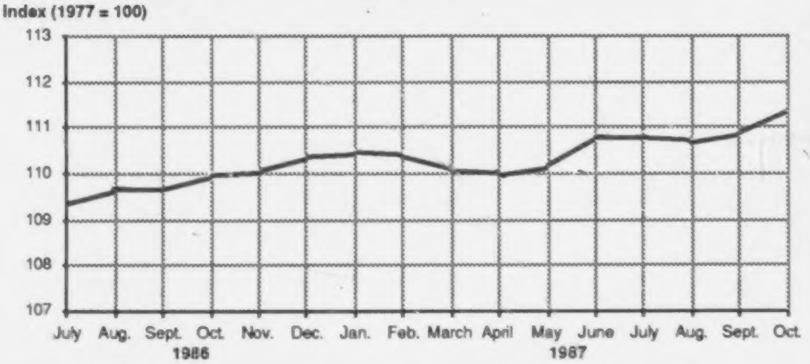
Source: Purchasing Management Association of Arizona and the Purchasing Management Association of Southern Arizona

The Arizona Index of Leading Economic Indicators gained .5 percent in October, bringing it to a new high of 111.4 and tying June's record increase for 1987 (see Figure I).

Seven of the 10 components rose in October, including those associated with employment. Hours worked in Arizona manufacturing firms bounced back from a September decline – the largest positive influence on the index. Seasonally adjusted unemployment claims dipped, and employment levels were up in a survey of Arizona purchasing managers. Production reported by the purchasing managers also accelerated, but seasonally adjusted new orders, inventories and delivery times negatively influenced the index. Residential building permits gained in value for the second consecutive month, after a large drop in August. Although construction employment in Arizona declined through most of 1987, the value of residential building permits rose in four of the last six months.

Two national indicators, the money supply and prices of sensitive materials, also increased.

FIGURE I
ARIZONA INDEX OF LEADING ECONOMIC INDICATORS



Source: Economic Outlook Center, College of Business, Arizona State University

TABLE 1
NET CONTRIBUTION OF INDIVIDUAL COMPONENTS TO THE ARIZONA INDEX OF LEADING ECONOMIC INDICATORS

	Net Contribution[+]			
	July	*Aug.*	*Sept.*	*Oct.*
Delivery Time*	-.09	.07	.05	-.01
Inventory Levels*	-.08	.04	.03	-.06
New Orders*	-.10	.09	-.02	-.01
Production*	-.07	.13	-.05	.02
Employment*	.03	-.02	-.04	.07
Residential Building Permits	.27	-.68	.41	.13
Unemployment Insurance Claims	-.01	.16	-.10	.17
Average Workweek, Manufacturing	.02	.12	-.25	.09
Money Supply	-.01	.02	.14	.09
Change in Sensitive Materials Prices	.10	-.03	-.05	.01
OVERALL INDEX CHANGE (%)	0	-.1	.1	.5

[+] The net contribution of each component is calculated by multiplying the monthly percent change in its index by its relative importance.

*Based on indicators from the purchasing management associations of Arizona and southern Arizona.

Source: Economic Outlook Center, College of Business, Arizona State University

OUTLOOK

The national index of leading economic indicators declined 0.2 percent in October, largely due to the sharp drop in stock prices, a component not included in the Arizona index. The national index would have increased nearly 1 percent without the influence of the stock market, an indication that momentum remains in the national economy. The probability of recession in the next six months is low.

After a flat period in the summer, the Arizona index resumed its growth pattern, a sign the local economy is not immediately imperiled by the uncertainty in national financial markets. The vital signs related to real factors, such as production and employment, remain favorable but not as vigorous as in the recent past.

At this point in the business cycle, many analysts are awaiting further data before offering specific forecasts for 1988. The drop in the international value of the dollar has yet to impact Arizona manufacturing. Employment in manufacturing in October was 400 jobs less than 12 months before.

Evidence continues to mount that population flows into the state have slowed relative to even a few months ago. As a result, both the services and the finance, insurance, and real estate sectors are expanding at a much slower rate than in years past.

Tallies on the year-end strength of retailing are not yet available, and the heart of the tourist season still lies ahead. Therefore, the impact of the stock market decline will not be fully discernible for some time.

The EOC outlook, based on the leading index's performance and other available data, is identical to that of the past several quarters: slow economic growth as we move into 1988.

– **Lee R. McPheters,** *Director*
Economic Outlook Center

ARIZONA ECONOMIC INDICATORS

	Month or Quarter	Value	Percent Change from Previous Period	Percent Change from Year Ago	Year-to-Date Value	Year-to-Date Percent Change from Year Ago
GROSS STATE PRODUCT (In Billions of Dollars, at Annual Rate)						
Arizona - Current Dollars	2nd Qtr.	56.162	1.3	8.1	NA	NA
Arizona - 1982 Dollars	2nd Qtr.	47.609	-0.2	4.0	NA	NA
CONSUMER PRICE INDEX (1977 = 100)						
Metropolitan Phoenix	3rd Qtr.	201.7	0.5	4.1	NA	NA
INDEX OF LEADING ECONOMIC INDICATORS (1977 = 100)						
Arizona	Oct.	111.4	0.5	1.3	NA	NA
BUILDING PERMITS (Total Dollar Value in Thousands)						
Maricopa County	Oct.	355,434	-10	7	3,426,632	0
Pima County	Oct.	40,077	-34	-47	507,810	-29
Balance of State	Oct.	55,712	-17	-28	544,001	-6
Arizona	Oct.	451,223	-14	-6	4,478,443	-5
TOTAL HOUSING UNITS AUTHORIZED						
Maricopa County	Oct.	2,453	-23	-13	25,099	-37
Pima County	Oct.	360	-54	-75	5,693	-46
Balance of State	Oct.	977	3	2	8,592	-20
Arizona	Oct.	3,790	-23	-28	39,384	-36
HOME SALES						
Maricopa County - Number	Oct.	4,220	-2	-7	51,400	-1
Maricopa County - Median Price	Oct.	82,000	-1.0	4.1	80,000	2.6
HOUSING AFFORDABILITY INDEXES						
Metropolitan Phoenix - New Homes	3rd Qtr.	92	-5.2	-4.2	NA	NA
Metropolitan Phoenix - Resale Homes	3rd Qtr.	109	-1.8	1.9	NA	NA
MORTGAGE INTEREST RATES (Conventional, 30-year, Fixed-rate)						
Maricopa County	Nov.	10.7	-4.5	11.5	NA	NA
POPULATION ESTIMATES (In Thousands)						
Maricopa County	3rd Qtr.	1,984	0.7	3.2	NA	NA
Arizona	3rd Qtr.	3,460	0.6	2.9	NA	NA
ELECTRICAL POWER SALES (In Millions of Kilowatt Hours)						
Arizona	Oct.	3,003	-10.6	15.2	32,775	7.1

NA = Not Applicable

Source: Center for Business Research, College of Business, Arizona State University

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Valley Homebuyers Pay More; Get Desired Features

Valley homebuyers are purchasing higher priced homes with more amenities and are obtaining most of the items they desire in a home. Price and high quality construction continue to be the most important considerations for the majority of buyers.

These findings resulted from an Arizona Real Estate Center survey of homebuyers who had purchased their home between May 1986 and June 1987. The 315 respondents answered questions about the type of home they had purchased as well as about features they desired in their home and additional items they had purchased for it.

A section of the survey directed to buyers who had moved to the Phoenix area within the past two years is discussed in the related article on page 3.

IMPORTANT HOUSING CHARACTERISTICS

Price ranked highest as an important or very important consideration when selecting the home (74 percent of respondents), followed closely by the desire for a better neighborhood (73 percent). Other important factors included the desire to own rather than rent (67 percent), investment value (64 percent), and the financing plan (60 percent).

Some housing characteristics varied in importance by the purchaser's housing type. For example, buyers of new single family homes considered the investment value of the home, status of the neighborhood, and available warranties to be more important than did buyers of other housing types. They were least concerned about the distance to work.

Both new single-family (SF) and new townhouse/condominium (TH/C) buyers considered the reputation of the builder and energy-saving features to be relatively important, but both types of resale buyers ranked these features of very little importance. Of the four groups, new TH/C buyers had the greatest desire to own rather than rent; they were more concerned about the monthly payment but least disturbed by the possibility of future price increases.

Both SF and TH/C resale buyers indicated a generally lower level of importance for all items. Table 1 shows the significance of certain home purchase factors, by housing type, in order of importance to the survey as a whole.

The most desired physical feature in all housing categories was high quality construction (98 percent), followed by a convenient floorplan (97 percent), and ample storage space (97 percent). Other important features included a light, open, spacious feeling (93 percent), a large master bedroom (93 percent), a modern kitchen (90 percent), and an enclosed garage (86 percent). Only the importance of the master bedroom and the garage varied by housing type - both were more highly valued by new home owners of both housing types than by resale owners.

With the exception of a large lot size and a swimming pool, the new single-family buyers obtained their

See "Homebuyers," page 2

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4 4th Quarter Valley Inflation
6 Dec. Purchasing Survey
7 AZ Leading Index, Nov.
8 AZ Economic Indicators

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desired features more often than did the resale purchasers. This finding is reversed in the townhouse market; buyers of new homes were more likely to obtain a fireplace, an enclosed garage and a large lot size, but those purchasing previously owned homes obtained all other features more often.

Whether the home is new or previously owned, many new owners purchase additional items to express their personal lifestyle. Most often, all except TH/C buyers purchased new drapes. All groups commonly invested in landscaping, interior painting, and appliances.

THE SEARCH PROCESS

Housing affordability steadily improved during the two years between mid-1985 and mid-1987 in response to declining interest rates, relatively stable home prices, and modest improvements in household income. This enabled buyers to purchase larger, more expensive homes at the same level of affordability as less expensive homes of the past. As a result, both the median price and median square footage have climbed in the last two years.

The wide range of models and options offered by various builders make the new home market conducive to shopping. This "buyer-oriented market" diminishes the pressure to "buy now before the deal is gone." Accordingly, search times for purchasers of new homes – typically four-to-six months – were longer than they had been on past surveys. Resale home buyers, however, continued to search for one-to-three months.

Buyers of new townhouses were most likely to look for their home within the same general area, while those purchasing new single-family homes were least likely.

Almost all buyers became aware of their home through a real estate agent (42 percent), by driving by the home (32 percent), or through friends or relatives (11 percent). Nine percent credited a newspaper ad, while less than 3 percent credited magazine ads or billboards. Even though 80 percent of the resale SF buyers and 68 percent of the resale TH/C buyers purchased their home with the assistance of a real estate agent, only 53 percent and 42 percent, respectively, originally became aware of their home through the agent.

TABLE 1
IMPORTANT HOME PURCHASE FACTORS
By Housing Type

	New Single Family	Resale Single Family	New TH/* Condo	Resale TH/* Condo
Price	78	72	100	64
Area/Neighborhood	77	73	88	61
Desire To Own	70	65	88	69
Investment Value	74	64	50	50
Financing Plan	66	61	63	42
Number of Bedrooms	61	61	63	47
Monthly Payment	54	46	75	33
Energy-saving Features	63	39	75	42
Amenities	42	40	37	20
To Avoid Future Price Increase	36	36	25	34
Reputation of Builder	64	24	73	19
Distance to Work	20	34	38	39
Warranties	42	25	38	31
Higher Status	34	16	13	17
Proximity to Friends/Relatives	14	18	25	31

*TH = Townhouse

TABLE 2
CHARACTERISTICS OF HOMEBUYER AND HOME

	Median Age of Buyer	Median Household Income	Median Sales Price	Median Square Footage
Single Family - New	30-34	$40-49,999	$106,000	1,800
Single Family - Resale	30-34	30-39,999	86,000	1,700
Townhouse/Condominium - New	25-29	30-39,999	88,000	1,375
Townhouse/Condominium - Resale	40-44	30-39,999	71,000	1,500

Source (Tables 1 and 2): Survey conducted by the Arizona Real Estate Center, College of Business, Arizona State University

BUYER PROFILE

The typical respondent was married (74 percent) and had some college education; 46 percent had no children. The median age was 35-39 years, and the median household income was $40,000-$49,000. Table 1 shows buyer characteristics for all housing types.

The typical homeowner purchased a three-bedroom, two-bath, previously owned, single-family home, of frame construction. The median price of all homes purchased was $90,000, and the median size was 1,700 square feet (see Table 2). Mortgage companies were the most popular loan source in all categories (71 percent).

The majority of married households reported dual incomes (56 percent), even though the affordability of homes has been improving. The proportion of families with dual incomes was larger in younger respondents – 68 percent of those under age 40. Dual incomes are still quite important since almost half of the respondents believed they purchased the most expensive home they could afford, with a payment equaling 25 percent of their income.

Half of the respondents have lived in the Phoenix area for more than five years (36 percent for more than 10 years). Sixty-one percent plan to live in the area for 10 years or more (38 percent for the rest of their lives). More than half plan to live in their new home for 5-10 years.

The typical previous residence for all housing types, with the exception of new townhouses, was a previously owned, single-family home. New townhouse buyers had rented most often and had the shortest length of previous residence (2.5 years vs. six-to-nine years for other types).

Homeowners who had owned their previous home had sold it for a median price of $82,000 and had lived in it approximately seven years. They then purchased the surveyed home for a median price of $90,000.

Even though the desires and purchases of the respondents varied by housing type, they were typically satisfied with their new home. They purchased larger, more expensive homes with more amenities, which correlates to the recent trend both locally and nationally.

– **Sharla Klvett,** *Research Analyst*
Arizona Real Estate Center

Newcomers vs. Longer-Term Valley Residents

Homebuyer Survey Reveals Divergent Feature Preferences

Homebuyers who had lived in the Phoenix area less than two years desired different features in their homes than those who had lived here longer, according to the results of a survey conducted by the Arizona Real Estate Center in the College of Business, Arizona State University. The survey examined preferences in housing characteristics of buyers who had purchased their home between May 1986 and June 1987.

Recent migrants purchased larger, more expensive homes and were more satisfied with the features they obtained. They valued many of the same items as the longer-term residents, but they ranked some of their preferences differently.

DESIRED FEATURES

The new arrivals had greater desire for a guest bedroom, a pool, and recreational facilities; they were also more likely to purchase homes with these features. They had less desire for a fireplace or a fence.

When asked which physical features they value most, the new residents' preferences mirrored those of the group as a whole – high quality construction and a convenient floorplan. Other popular features included ample storage space, a large master bedroom, a modern kitchen, and a light, open, spacious feeling.

HOUSING CHARACTERISTICS

Recent Valley migrants purchased slightly larger, more expensive homes – almost half were at least 1,800 square feet and sold for more than $100,000. Only 38 percent of the group as a whole chose homes in this price and size range.

The newcomers also showed a small preference toward new, single-family homes and had slightly less interest in previously owned townhouses/condominiums. They were just as likely to purchase a home constructed of block or masonry as of frame, whereas the group as a whole bought more homes of frame construction.

The price of the recent migrants' prior home was higher than for longer-term residents, and they were more likely to purchase a home smaller than their previous one (see Table 1). Even though they were more likely to buy higher priced homes with more standard amenities, they rated the amenities at a lower level of importance than did the group as a whole.

THE SEARCH PROCESS

Recent arrivals to the Valley searched over a larger geographic area but spent less time looking for their home (typically less than one month, compared to one-to-three months for the whole group). They also utilized the services of a real estate agent more often.

A larger proportion of new residents owned, rather than rented, their previous home; they were also more likely to have owned a single-family home prior to purchasing their current residence.

THE NEW MIGRANTS

More than 30 percent of the new arrivals had moved from California or Illinois. Other states commonly listed as previous residences, in order of occurrence, include Texas, Colorado, Ohio and Michigan. Almost half had lived in their prior state for 20 years or more.

TABLE 1
COMPARISON OF CHARACTERISTICS
(Median Values)

	Recent Arrivals	Entire Survey
Home Price	$95,000	$90,000
Square Footage	1,800	1,700
Age of Buyer	40-44 yrs.	35-39 yrs.
Income	$40,000-49,000	$40,000-49,000
Previous Home Price	$90,000	$82,000

Source: Survey conducted by the Arizona Real Estate Center, College of Business, Arizona State University

Respondents were asked to choose the factors important to their decision to move and then to identify the most important reason. Climate was the most frequent motivator (61 percent), followed by quality of life and employment. Almost 23 percent of the respondents said employment was the most influential reason for their relocation.

One-third of the new migrants expect to live in the Phoenix area for the rest of their lives, and 70 percent plan to make this area their home for 10 years or longer. They expect to live in their current home for either five or 10 years.

Typically, the new migrants were somewhat older, had a slightly higher income, and were more likely to be married. Their median age was 40-44 years, and they reported an income just greater than the overall median of $40,000-$49,000. Even though a larger proportion of the newcomers were married (83 percent vs. 74 percent), fewer of the couples reported both spouses as wage earners (50 percent vs. 63 percent).

Employment played a significant part in the decision to relocate for many of the migrants. Seventy-five percent had accepted a position with a Valley employer prior to moving, and almost all had found work within three months. A smaller proportion of this group moved due to lack of job opportunities in their previous areas of residence, even though they came from the same states as the primary group. As with the survey respondents as a whole, the predominant occupations were those of engineer, business executive, and salesperson.

Respondents relocating to the Phoenix area less than two years ago were more likely to obtain the features they desired, particularly if they purchased a single-family home. The larger size of the typical home as well as the amenities that tend to be found in higher priced homes could partially explain their greater satisfaction.

– **Sharla Klvett,** *Research Analyst*
Arizona Real Estate Center

Valley Inflation Still Modest in Fourth Quarter

Valley inflation remained moderate during fourth quarter 1987, registering a seasonally adjusted increase of 0.9 percent. Before seasonal adjustment, the Metropolitan Phoenix Consumer Price Index rose 0.5 percent, to 202.7 (1977 = 100). The index was 4.7 percent higher than in fourth quarter 1986, the largest annual gain since mid-1985. However, the annual advance should slow to 4 percent or less during the first half of 1988, before returning to the 4.5-to-5 percent range.

COMPONENT INDEXES

A major increase in housing costs was offset by a decline in transportation costs, keeping the overall inflation rate comparable to that of the prior two quarters (see Table 1). Excluding gasoline prices, which fell sharply, the fourth quarter index increased approximately 1.5 percent, the largest jump since first quarter 1985. However, this gain followed a relatively small increase in third quarter 1987.

Food and Beverages

Slight inflation again characterized this category; the change in the index for the year ending fourth quarter 1987 was just 1.6 percent. Food-at-home prices declined slightly, but moderate inflation was measured in the food-away-from-home and alcoholic beverages categories.

Among grocery items, cereal and bakery products again posted a moderate advance in price (see Table 2). Prices of dairy products climbed, after two straight quarterly decreases. In contrast, fruits and vegetables became less expensive as fresh produce prices fell, and the other-food-at-home category registered its fourth consecutive quarterly decrease.

Housing

Housing costs soared, recording the largest seasonally adjusted change in more than four years. This jump resulted when several important categories simultaneously experienced unusually large gains and should not be viewed as a trend toward higher inflation in housing. Despite the big quarterly increase, the total change in the four quarters of 1987 was only 3.6 percent.

Renters' costs rose more during the fourth quarter than in any quarter since 1984, but the increase followed four consecutive quarterly declines; the cumulative change during 1987 was negative. More rental reductions are possible next year, since the apartment vacancy rate remains high. Homeowners' costs rose by the second largest amount in more than four years, after two quarters of slight advances.

The greatest factor affecting housing costs was a jump in utility gas rates of more than 10 percent, the third consecutive gain following a series of declines through most of 1985 and 1986. Rates were 20 percent higher than in fourth quarter 1986. In contrast, electricity rates were only 1 percent higher than at year-end 1986, despite a seasonally adjusted gain in the fourth quarter.

Transportation

Transportation costs decreased, following large advances during the first two quarters of 1987. The drop was entirely due to a 10 percent plunge in gasoline prices. Despite these declines, gasoline prices were up 19 percent, and the transportation index was 10 percent higher than one year earlier.

Though auto maintenance and repair costs fell, prices of parts rose sharply. Likewise, a slight dip in auto insurance premiums was offset by a minimal gain in vehicle finance charges. New and used car prices continued to rise at relatively high rates.

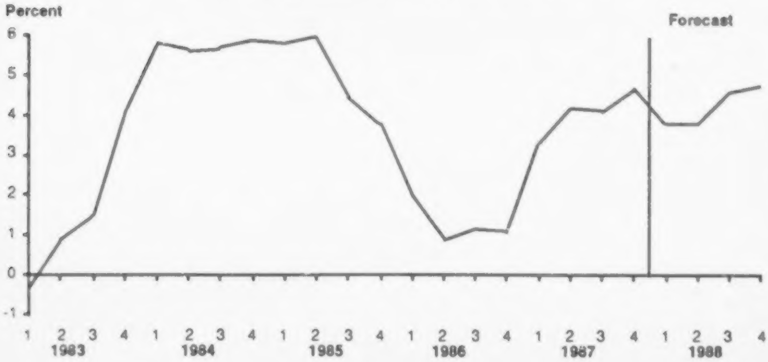
Medical Care

Health care inflation remained moderate; the increase from fourth quarter 1986 to fourth quarter 1987 was only 3.3 percent. In the fourth quarter, costs of non-prescription drugs and professional services dropped, the latter for the first time since 1984, offsetting moderate-to-large gains in costs of prescription drugs and hospital services. The slowdown in medical care inflation resulted primarily from declines in the health insurance category. Despite an advance in the fourth quarter, insurance premiums were lower than in fourth quarter 1986.

Other Categories

Apparel and upkeep costs rose modestly in the fourth quarter, as did those of other goods and services. The entertainment category, however, again climbed substantially as the winter increase in fees for some

FIGURE I
METROPOLITAN PHOENIX CPI
Percent Change from Same Quarter, Prior Year



Source: Center for Business Research, College of Business, Arizona State University

Metro Phoenix CPI

The Metropolitan Phoenix Consumer Price Index (CPI), on which these inflation figures are based, is prepared by the Center for Business Research in the ASU College of Business. The Center conducts comprehensive pricing surveys each quarter, in cosponsorship with Valley National Bank. For more information on the CPI, call the Center at (602) 965-3961.

participant sports, such as golf, was larger than normal.

COMPARISON AREAS

Not seasonally adjusted, inflation in the Phoenix area during the fourth quarter was slightly less than the U.S. rate. Metropolitan Phoenix had lower or comparable rates in all major categories except housing and entertainment (see Table 3).

Compared to fourth quarter 1986, the Phoenix area's inflation rate was comparable to the national rate. Lower inflation in the categories of food and beverages, apparel and upkeep, and medical care was offset by higher inflation in the transportation and entertainment categories.

OUTLOOK

Inflation in the Phoenix area should continue to track that of the nation, each remaining in the 4-to-5 percent range during 1988. Earlier fears of much higher inflation, prevalent in financial markets, seem unjustified. The worldwide decline in oil prices late in 1987 augers more moderate consumer inflation during 1988.

In the Phoenix area, comparatively slow economic and population growth is expected to continue in 1988, holding the local inflation rate near that of the nation. While inflation in some categories, such as medical care and electricity, is likely to accelerate in 1988, other inflation rates are unlikely to change much, including those of large categories such as renters' costs, homeowners' costs and automobiles. Gasoline prices probably will remain steady or decline in early 1988.

The surge in inflation registered early in 1987, which was due to rising gasoline prices, is not likely to be repeated in 1988. Thus, the annual inflation rate temporarily will slow, even though the quarterly changes are likely to remain similar to, or slightly higher than, those of the last three quarters of 1987 (see Figure I).

The result is that the year-end to year-end rate in 1988 is not likely to be much different from the 1987 rate of 4.7 percent. The 1988 annual average also is unlikely to be much different from the 4.1 percent registered in 1987.

– Tom R. Rex
Research Manager

TABLE 1
PERCENT CHANGES IN METROPOLITAN PHOENIX CONSUMER PRICE INDEX

		Seasonally Adjusted from Preceding Quarter							
Expenditure Category	*Relative Importance*	*1st 1986*	*2nd 1986*	*3rd 1986*	*4th 1986*	*1st 1987*	*2nd 1987*	*3rd 1987*	*4th 1987*
ALL ITEMS	100.0	-0.2	0.4	0.8	0.5	2.1	1.1	0.7	0.9
Food and Beverages.....	18.7	0.5	1.0	2.3	0.1	-0.2	0.5	0.9	0.6
Housing	39.5	0.7	0.2	1.0	0.4	0.5	0.2	0.5	2.3
Apparel and Upkeep	4.8	-3.3	5.5	-2.5	1.9	-2.5	2.8	2.7	0.9
Transportation	21.2	-2.5	-1.9	-1.1	-0.2	8.1	3.0	0.9	-2.0
Medical Care	6.9	1.3	1.7	0.2	1.2	1.8	2.7	-2.1	0.9
Entertainment	4.8	-1.7	2.4	-0.8	4.5	2.4	-1.2	2.0	3.1
Other Goods and Services	4.3	1.7	0.7	2.1	0.6	2.0	0.3	2.9	0.6

TABLE 2
METROPOLITAN PHOENIX CONSUMER PRICE INDEX
Fourth Quarter 1987

	Index (1977 = 100)		Percent Change from	
Expenditure Category	*Last Quarter*	*This Quarter*	*Last Quarter* *	*Year-Ago Quarter*
ALL ITEMS	201.7	202.7	0.9	4.7
Food and Beverages	183.0	183.0	0.6	1.6
Food	183.2	183.1	0.5	1.4
Food at Home	183.0	181.4	-0.2	1.8
Cereal and Bakery Products ..	205.9	208.3	1.7	5.4
Meats, Poultry, Fish, and Eggs	168.0	169.5	0.9	1.5
Dairy Products	166.8	171.6	2.8	3.6
Fruits and Vegetables	202.0	192.2	-3.7	4.4
Other Food at Home	172.0	166.7	-1.5	-2.3
Food Away from Home	180.8	183.3	1.7	0.7
Housing	208.0	210.3	2.3	3.3
Shelter	224.1	228.1	1.9	2.7
Renters' Costs**	116.6	119.1	2.1	-0.2
Homeowners' Costs**	114.5	116.3	1.6	3.8
Fuel and Other Utilities	180.7	180.0	5.3	6.8
Gas (piped) and Electricity	201.1	198.5	8.1	9.6
Household Furnishings/Operations	155.6	155.6	1.1	2.2
Apparel and Upkeep	151.4	154.1	0.9	2.8
Transportation	195.9	192.5	-2.0	10.0
Private Transportation	193.4	189.5	-2.2	10.3
New and Used Cars...........	204.6	208.7	3.0	7.1
Motor Fuels	166.6	152.9	-9.8	18.7
Public Transportation	235.7	239.6	1.1	4.9
Medical Care	278.1	281.3	0.9	3.3
Entertainment	206.8	220.1	3.1	6.8
Other Goods and Services	193.3	193.0	0.6	5.9

*Seasonally adjusted
**Base period is second quarter 1983.

TABLE 3
METROPOLITAN PHOENIX AND UNITED STATES CONSUMER PRICE INDEXES
Fourth Quarter 1987

	Percent Change from Last Quarter*		Percent Change from One Year Ago	
Expenditure Category	*Phoenix*	*United States*	*Phoenix*	*United States*
ALL ITEMS	0.5	0.9	4.7	4.5
Food and Beverages	0.0	0.4	1.6	3.3
Housing	1.1	0.0	3.3	3.6
Apparel and Upkeep	1.8	5.4	2.8	6.2
Transportation	-1.8	1.2	10.0	6.5
Medical Care	1.1	1.2	3.3	6.1
Entertainment	6.4	1.5	6.8	3.9
Other Goods and Services ...	-0.2	2.6	5.9	6.0

*Not seasonally adjusted

Source (Tables 1, 2 and 3): Metropolitan Phoenix data compiled by the Center for Business Research, College of Business, Arizona State University, in cosponsorship with Valley National Bank; other data in Table 3 are from the U.S. Department of Labor, Bureau of Labor Statistics.

December Purchasing Indicators Struggle Upward

The Arizona economy posted advances in all areas in December. New orders, production, and employment continued to increase, although the rate of climb slowed somewhat. Employment grew again, for the 12th month in a row. Prices rose at the same rate as in November.

Some slowing in the growth rate of Arizona's five-year-old expansion now is evident, although the economy still shows considerable strength. Further moderation should be anticipated over the next six months, as adjustments are made in response to continuing financial problems and a deficit trade balance that seems to resist improvement. The chances of a slight recession about mid-year 1988 have increased, although any pause is likely to be short.

PRICES

Prices paid for purchased items continued to escalate in December at a rate consistent with those of the preceding five months. While the rate of inflation definitely stepped up during the last half of 1987, it does not appear to be out of control.

DELIVERY TIME

Delivery time on vendor shipments lengthened at a rate somewhat smaller than in each of the preceding three months. This stretchout in lead times indicates that order backlogs at supplier firms remain healthy.

INVENTORY LEVELS

Inventory levels of purchased materials experienced only a slim increase, the smallest since last July. Additions to inventory during second half 1987 all have been small. It is unlikely that any inventory overhang exists that might result in forced reductions, triggering a downswing.

NEW ORDERS

New orders went up in December but at half the November rate. This monthly increase was the smallest since December 1986. Growth in new orders has shrunk consistently over the past four months as some of the steam has gone out of the expansion.

TABLE 1
DECEMBER PURCHASING SURVEY

Key Indicators	Percent of Purchasing Managers Indicating Each Response (December compared to November) *Higher*	*Same*	*Lower*
Prices paid for major commodities	42	55	3
Delivery time from vendors	39	51	10
Purchased materials inventory level	30	42	28
New orders received	39	33	28
Production	32	41	27
Employment	22	66	12
Purchases	46	26	28

TABLE 2
ANTICIPATED EXPENDITURES FOR NEW PLANT AND EQUIPMENT

	Percent of Purchasing Managers Indicating Each Response *Higher*	*Same*	*Lower*
1988 compared to 1987	42	28	30
1987 compared to 1986	53	34	13
1986 compared to 1985	48	33	19
1985 compared to 1984	53	28	19
1984 compared to 1983	53	31	16
1983 compared to 1982	27	26	47
1982 compared to 1981	40	19	41
1981 compared to 1980	49	27	24

Source (Tables 1 and 2): Purchasing Management Association of Arizona and the Purchasing Management Association of Southern Arizona

PRODUCTION

Production accelerated at the smallest rate since June 1986. This indicator's increase rate has become smaller each month since last August.

EMPLOYMENT

Employment grew in December at the same rate as in November. The trend in employment has been consistently up in each month of 1987, which is a strong signal that business is still on the rise.

PURCHASES

Purchases of materials and supplies rose again, although the rate was smaller than in November. Purchases were less robust in the second half of the year, caused by the moderation in production increases.

CAPITAL EXPENDITURE PLANS

The special question, asked each December, relates to *anticipated expenditures* for new plant and equipment during the coming year. The responses indicate that some expansion is planned for 1988, although the anticipated rate is the smallest since December 1982 – the low point of the last recession. Evidently, Arizona firms feel that the economy will continue to grow and that additional capacity will be needed. However, their upward projection for 1988 is the most cautious since the current expansion began early in 1983.

– **Harold Fearon**

Dr. Fearon is the National Association of Purchasing Management Professor in the ASU College of Business.

Arizona Purchasing Survey

Now in its 26th year of monthly reporting, Dr. Harold Fearon's survey of Arizona business conditions utilizes data gathered at the close of each month from members of the purchasing management associations of Arizona and southern Arizona. They indicate the direction - higher, unchanged, or lower - of seven key measures of economic activity in the month just ended. These purchasing managers deal daily with supply, demand, and price factors in the marketplace; their aggregate readings have accurately charted the state's economic course for two decades, providing timely data on turning points.

Arizona Leading Index Dips in November

The Arizona Index of Leading Economic Indicators decreased slightly in November to 111.3, 0.1 percent below October's record high 111.4 (see Figure I).

The index is based on 10 indicators weighted and combined to project the pace of the Arizona economy up to six months in the future. Seven of the 10 components declined in November.

The greatest negative influence came from a seasonally adjusted increase in new unemployment insurance claims. Several other components – hours worked in Arizona manufacturing establishments, a national measure of sensitive materials prices, and the money supply (M2) – also pulled the index down.

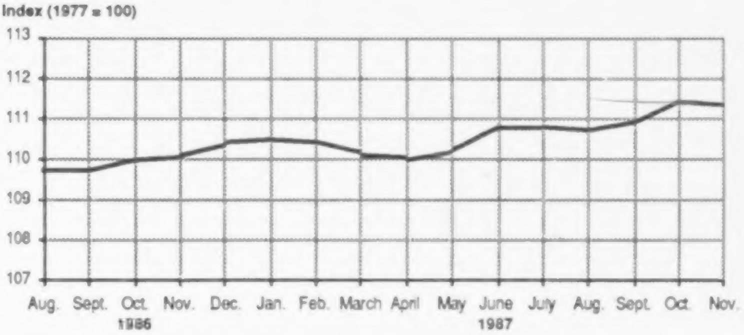
The value of residential building permits rose for the third consecutive month, after dipping in August to a low point for the year. Inventories and orders, two of the five components derived from a survey of Arizona purchasing managers, also advanced in November. However, the managers reported that seasonally adjusted delivery times, production, and employment all declined.

OUTLOOK

Analysts are still attempting to unravel the impacts of October's stock market collapse. Initial fears of widespread recession have not been realized. Indicators of production and employment have remained stable.

In spite of calls for a precautionary injection of liquidity into the economy, Federal Reserve authorities allowed the money supply (both M1 and M2) to decline in November. This policy tack can only be interpreted as evidence that the monetary authorities have raised their inflation guard again, satisfied the economy will not tumble into recession as a result of the stock market slide. The Fed's posture is a signal that interest rates will not come down in the near future. For Arizona, this means that residential construction will not receive any significant stimulation during early 1988.

FIGURE I
ARIZONA INDEX OF LEADING ECONOMIC INDICATORS



Source: Economic Outlook Center, College of Business, Arizona State University

TABLE 1
NET CONTRIBUTION OF INDIVIDUAL COMPONENTS TO THE ARIZONA INDEX OF LEADING ECONOMIC INDICATORS

	Net Contribution[+]			
	Aug.	*Sept.*	*Oct.*	*Nov.*
Delivery Time*	.07	.05	-.01	-.02
Inventory Levels*	.04	.03	-.06	.07
New Orders*	.09	-.02	-.01	.07
Production*	.13	-.05	.02	-.07
Employment*	-.02	-.04	.07	-.01
Residential Building Permits	-.68	.41	.13	.41
Unemployment Insurance Claims	.16	-.10	.17	-.20
Average Workweek, Manufacturing	.12	-.25	.09	-.12
Money Supply	.02	.14	.09	-.15
Change in Sensitive Materials Prices	-.03	-.05	.01	-.06
OVERALL INDEX CHANGE (%)	-.1	.1	.5	-.1

[+] The net contribution of each component is calculated by multiplying the monthly percent change in its index by its relative importance.

*Based on indicators from the purchasing management associations of Arizona and southern Arizona.

Source: Economic Outlook Center, College of Business, Arizona State University

The dollar's skid in international markets should eventually favor Arizona agricultural and manufacturing exports. While the dollar was falling during 1987, however, the average workweek in Arizona manufacturing was shorter than in 1986.

The path of the Arizona leading index during 1987 flattened in the spring and again in late summer, consistent with the moderate pace of growth. Sharp or extended declines in the index, indicators of recession ahead, are absent. The forecast is that the Arizona economy will experience slow growth in 1988, not much different from its 1987 performance and not substantially better or worse than the outlook for the nation as a whole.

– **Lee R. McPheters,** *Director*
Economic Outlook Center

ARIZONA ECONOMIC INDICATORS

	Month or Quarter	*Value*	*Percent Change from Previous Period*	*Percent Change from Year Ago*	**Year-to-Date** *Value*	*Percent Change from Year Ago*
GROSS STATE PRODUCT						
(In Billions of Dollars, at Annual Rate)						
Arizona - Current Dollars	2nd Qtr.	56.162	1.3	8.1	NA	NA
Arizona - 1982 Dollars	2nd Qtr.	47.609	-0.2	4.0	NA	NA
CONSUMER PRICE INDEX (1977 = 100)						
Metropolitan Phoenix	4th Qtr.	202.7	0.5	4.7	NA	NA
INDEX OF LEADING ECONOMIC INDICATORS (1977 = 100)						
Arizona	Nov.	111.3	-0.1	1.1	NA	NA
BUILDING PERMITS						
(Total Dollar Value in Thousands)						
Maricopa County	Nov.	218,663	-38	-8	3,645,295	-1
Pima County	Nov.	42,912	7	-14	550,722	-28
Balance of State	Nov.	37,030	-43	-23	614,960	-2
Arizona	Nov.	298,605	-35	-11	4,810,997	-5
TOTAL HOUSING UNITS AUTHORIZED						
Maricopa County	Nov.	1,565	-36	-16	26,664	-36
Pima County	Nov.	197	-45	-71	5,890	-48
Balance of State	Nov.	921	-10	1	10,110	-14
Arizona	Nov.	2,683	-30	-22	42,664	-34
HOME SALES						
Maricopa County - Number	Dec.	3,240	-29	-50	59,250	-6
Maricopa County - Median Price	Dec.	83,275	1.4	4.4	80,050	2.6
HOUSING AFFORDABILITY INDEXES						
Metropolitan Phoenix - New Homes	3rd Qtr.	92	-5.2	-4.2	NA	NA
Metropolitan Phoenix - Resale Homes	3rd Qtr.	109	-1.8	1.9	NA	NA
MORTGAGE INTEREST RATES						
(Conventional, 30-year, Fixed-rate)						
Maricopa County	Dec.	10.6	-0.9	15.2	NA	NA
POPULATION ESTIMATES						
(In Thousands)						
Maricopa County	3rd Qtr.	1,984	0.7	3.2	NA	NA
Arizona	3rd Qtr.	3,460	0.6	2.9	NA	NA
ELECTRICAL POWER SALES						
(In Millions of Kilowatt Hours)						
Arizona	Nov.	2,754	-8.3	13.5	35,529	7.5

NA = Not Applicable

Source: Center for Business Research, College of Business, Arizona State University

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ARIZONA STATE UNIVERSITY ■ COLLEGE OF BUSINESS
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New Coincident Economic Indexes

Economic Growth Fastest in Phoenix Area

To provide regional measures of economic growth in Arizona, the Center for Business Research has developed a set of coincident economic indicators. Separate indexes are available for the Phoenix metropolitan area (Maricopa County), the Tucson metro area (Pima County), and non-metropolitan Arizona; an aggregate measure for the entire state also has been calculated. The methodology used to build these indexes is similar to that of the national "Index of Four Roughly Coincident Indicators," reported monthly by the U.S. Department of Commerce.

Local economies, like the national economy, follow a cycle in which contractions in business activity occur, on average, every four or five years. However, the timing and magnitude of expansions and contractions vary by area. The new coincident indexes identify turning points in the local economic cycles and measure economic growth or decline. They have the advantages of being available monthly on a reasonably current basis and of not being frequently or substantially revised.

COMPONENTS AND CONSTRUCTION

Few economic indicators accurately track the business cycle. Nationally, only four are included in the coincident index: personal income, industrial production, employment, and manufacturing and trade sales. Since most of these indicators are not available except at a national level, the indexes for the local areas are based on the following four indicators: employment, unemployment rate, retail sales and commercial building permits. One of these alone is not a consistent measure of the economy; when combined, however, they accurately track the economic cycle.

To construct a coincident index, data for each of these four measures are seasonally adjusted. Monthly percent changes are computed by a formula that produces symmetrical positive and negative changes, which are then standardized by the long-term average percent change. A composite change is computed from the weighted sum of the component changes (employment and the unemployment rate are given greater weights than retail sales and commercial building permits) and a trend-adjustment factor. The latter adjusts the growth of the coincident index to equal the long-term average growth of the Arizona economy, as measured by the

See "Coincident Indexes," page 2

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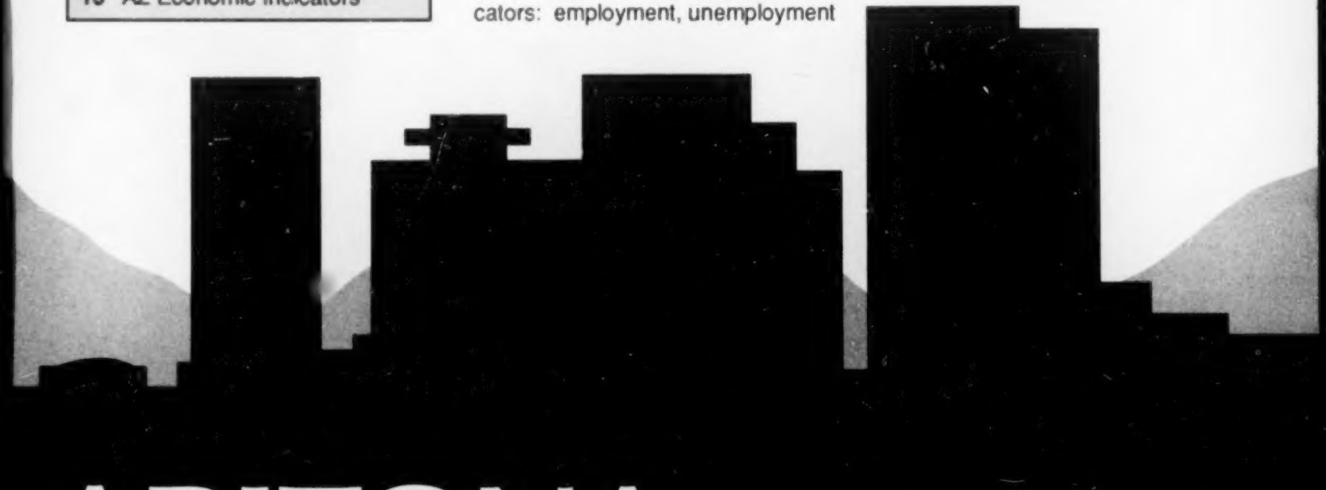

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"Coincident Indexes," from page 1

Gross State Product. Finally, an index is calculated, with the annual average of 1982 equal to 100. The Arizona composite index is simply the weighted average of the three local measures.

The coincident index for the Phoenix area begins in January 1970. Since building permit information is not available prior to 1974 except in Maricopa County, the other counties' coincident indexes begin in January 1974.

HISTORY AND INTERPRETATION

Because the coincident indexes rarely move countercyclically (rising during recessions or falling during expansions), they provide an accurate measure of turning points in the economic cycle. During expansions, the monthly change in Maricopa County is positive 90 percent of the time, with more than 50 percent of the months registering a gain in excess of 0.6 percent. Slightly more than 80 percent of the changes are positive in Pima County and in the rural area; approximately one-half of the increases equal or exceed 0.5 percent. During recessions, 15 to 20 percent of the changes are positive in all areas. Approximately one-half decline at least 0.4 percent.

Decision Rule

In the Arizona and Maricopa County coincident indexes, two consecutive advances or declines totaling approximately 1 percent or more reliably indicate the end of, respectively, a recession or an expansion. No false signal ever has been generated by this criterion; two successive countercyclical changes never have accumulated to more than 0.5 percent.

The other coincident indexes are more erratic, especially that for Pima County. Whether these variations are due to data insufficiencies or to true fluctuations in economic conditions is difficult to ascertain. Consecutive declines totaling at least 1 percent have occurred three times in Pima County without further weakness ensuing. For both the Tucson area and for rural Arizona, large, single-month, countercyclical changes are not uncommon.

History

The history of the coincident indexes since 1974 is shown in Figures I and II. The most obvious feature of these graphs is that growth in Maricopa County has surpassed that in Pima County and non-metropolitan Arizona; expansion in the rural area has lagged. Expansions and recessions generally occur at roughly the same time in each area.

The outstanding growth of the Phoenix area is best seen in the two long expansions of the late 1970s and mid-1980s. In each case, rural area growth lagged badly. The pattern during recessions is not consistent. The Phoenix area economy declined more in 1974-75, about the same in 1980, and less in 1981-82 than the economies of the other areas.

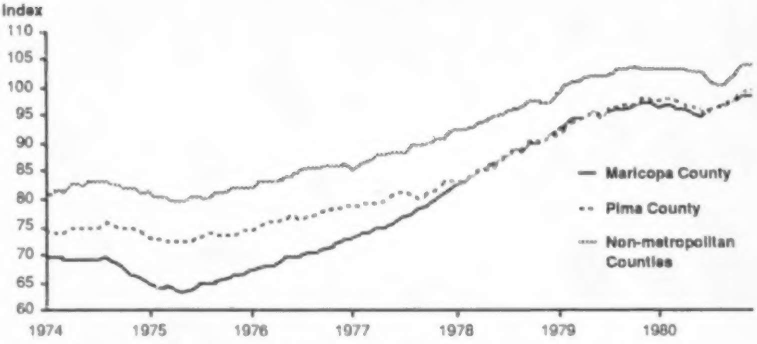
More detailed information on cyclical turning points and on magnitude of growth or decline is provided in Table 1. Among the three areas, turning points generally are no more than two months apart. Though the Phoenix area economy technically peaked in December 1973, several months before the other two areas, its growth was flat; the others grew slightly.

Though the non-metropolitan economy peaked one month before the others in 1979, its recession lasted two months beyond those of the metro areas. Most of the decline did not occur until after the other economies had bottomed out. The only other timing differences have occurred since 1984 and are discussed in the next section.

CURRENT CYCLICAL PERFORMANCE

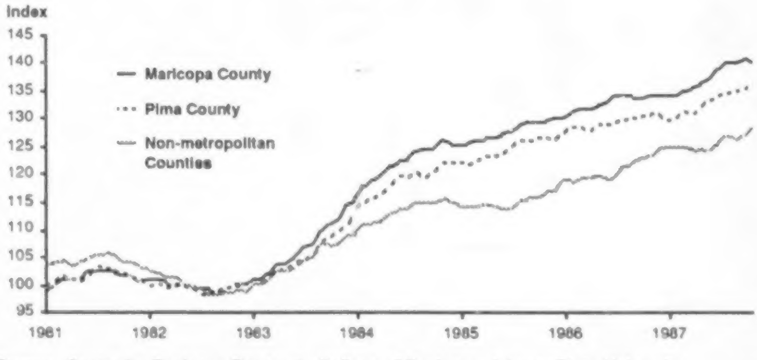
After the end of the last recession in 1982, business activity in each of the three areas expanded rapidly. In early 1984, growth rates in each area were the highest since the coincident indexes began. However, the peak in rural Arizona of 11 percent was much less than the annual

FIGURE I
MONTHLY COINCIDENT INDEXES, 1974-80
(1982 = 100)



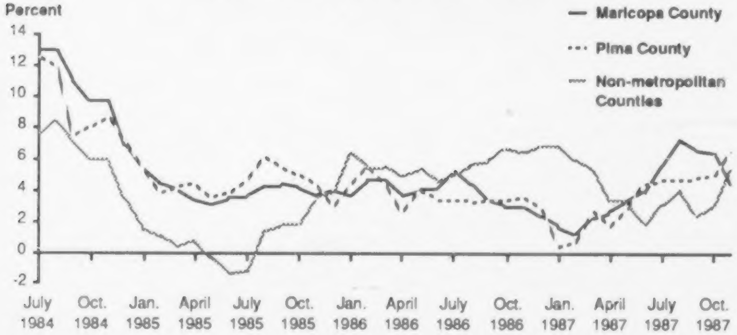
Source: Center for Business Research, College of Business, Arizona State University

FIGURE II
MONTHLY COINCIDENT INDEXES, 1981-87
(1982 = 100)



Source: Center for Business Research, College of Business, Arizona State University

FIGURE III
MOVING AVERAGE PERCENT CHANGE IN MONTHLY COINCIDENT INDEXES



Source: Center for Business Research, College of Business, Arizona State University

TABLE 1
ECONOMIC TURNING POINTS AND GROWTH RATE CHANGES

	Maricopa County		Pima County		Non-metropolitan Area	
	Date	*Percent Change*	*Date*	*Percent Change*	*Date*	*Percent Change*
Peak	12/73	32.3	8/74	NA	7/74	NA
Trough	5/75	-9.0	6/75	-4.7	5/75	-4.4
Peak	11/79	53.5	11/79	35.4	10/79	30.0
Trough	6/80	-2.7	6/80	-2.6	8/80	-3.1
Peak	6/81	8.4	7/81	8.5	8/81	5.5
Trough	9/82	-3.8	7/82	-5.2	8/82	-7.4
Peak	None		None		11/84	17.9
Trough	None		None		6/85	-1.8
Total since 1982 trough		41.6		39.5		31.3

NA = Not available

Source: Center for Business Research, College of Business, Arizona State University

rates of 16 percent in Pima County and 17 percent in Maricopa County.

The economic performances of the local areas have varied greatly since 1984. By early 1985, growth rates in all areas had dipped below the state's long-term annual average of 5.7 percent; the weakness was particularly apparent during the first seven months of 1985. However, while growth continued in the metropolitan areas – slightly less rapidly in Phoenix than in Tucson – the rural economy slipped into a brief, mild recession.

Growth remained relatively slow during 1986 in the urban areas, though the pace in the Phoenix area recovered sufficiently to again surpass that of the Tucson area. Rural Arizona, however, recovered from its 1985 recession by expanding at above-average rates.

In late 1986 and early 1987, another period of economic weakness affected the metro economies, with growth nearly stalling, especially in Tucson. Just as the urban areas were recovering in spring 1987, the non-metro economy faltered. Until November, the rural economy remained the weakest in the state, at annual growth rates of approximately 3 percent. The metro areas' economies recovered to growth rates near 5 percent in Tucson and more than 6 percent in Phoenix.

These changes can be tracked in Figure III. The moving average percent change compares a monthly index to the average of the preceding 12 months. The formula used results in a slight lag in the moving average.

NOVEMBER 1987

Economic performance diverged considerably during November. Non-urban Arizona led the growth for the second straight month, with a 1.5 percent jump, the fifth largest since the 1981-82 recession. This index reached a new high at 128.8. In metro Tucson, the advance was nearly as large at 1.1 percent, pushing this index to a record 137.0. In contrast, the index for metro Phoenix fell 0.6 percent to 139.9, the largest decline since 1982.

Much of the difference in performance can be traced to the commercial-building-permit component. Its drop in Maricopa County was an aberration that probably will be largely offset in December's figure. In contrast, gains in this component in the other areas did not completely negate big declines in October.

Changes in the unemployment rate also contributed to regional variation. The unemployment rate rose in the Phoenix area, was nearly stable in metro Tucson, and plunged in rural Arizona. Employment growth was nil in the Phoenix area but moderate in the rest of the state. Retail sales dipped in all areas.

The wide differences in November's performance caused the moving average percent changes to swing considerably (see Figure III). Compared to the November 1986 index, each area's index is approximately 4.5 percent higher – a subpar growth rate.

The composite statewide measure was flat in November, remaining at a record high 137.4.

– **Tom R. Rex**
Research Manager

Indexes To Be Reported Monthly

The coincident indexes for Maricopa County, Pima County, rural Arizona and the entire state will be reported monthly in *Arizona Business.* A three-month lag will occur from the end of the month in question. The information can be received about one month sooner by calling the Center for Business Research at (602) 965-3961; it also may be reported at that time by some of the local media.

These indexes represent one of a series of efforts by the Center to report economic and demographic information on a geographically disaggregated basis. Other products that will be reported in coming months include population estimates and projections as well as the Gross County Products.

'87 Metro Phoenix Housing Appreciation

Rates Slow for Single-family Homes, Stall for Townhouses/Condos

The median annual rate of appreciation for single-family homes in the Phoenix metropolitan area declined slightly to approximately 2.4 percent in 1987, fractionally less than in any year since the study of appreciation rates began in 1981. Townhouses and condominiums (hereafter referred to as townhouses or townhomes) did not appreciate; their rate was 0.0 percent.

Of all homes sold more than once between 1981 and 1987, 30,336 constitute the single-family data base. Another 2,724 homes make up the townhouse data base. Throughout this article, less detail is provided on townhouses because of their relatively small number.

HOUSING APPRECIATION, 1981-87

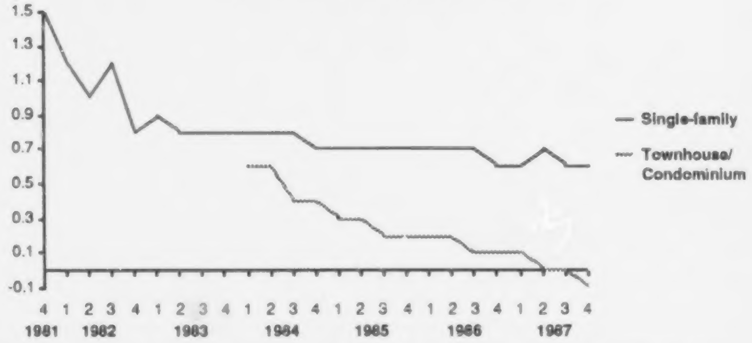
The single-family home appreciation rate has slowed gradually since 1981 (see Figure I). The townhouse rate has decelerated more sharply since its measure began in 1984.

The appreciation rate did not keep up with inflation in consumer prices between 1983 and 1987 (see Table 1). The median sales price for both single-family homes and townhomes rose more than either the appreciation or inflation rate. However, the higher rates are due to increases in the size of the typical home; the median sales price per square foot advanced less than the inflation rate.

By Price

Home price exerts the strongest influence on the rate of appreciation. Single-family homes that sold for more than $100,000 appreciated about twice as fast as those that sold for less than $60,000. This relationship between price and appreciation also holds after adjusting the sales price for home size. Homes that sold for more than the median square-foot amount of $54 appreciated 4.0 percent per year, compared to a rate of 2.4 percent per year for less expensive homes. These rates are the same as last year's, when a median per-square-foot amount of $53 was used.

FIGURE I
MEDIAN RATE OF METRO PHOENIX HOME APPRECIATION
By Quarter of Subsequent Sale



Note: Quarterly data for townhouses/condominiums are not available prior to 1984 due to an insufficient number of sales.

Source: Arizona Real Estate Center, College of Business, Arizona State University

TABLE 1
INFLATION MEASURES

	Percent Change					
	1983	*1984*	*1985*	*1986*	*1987*	*1983-87 Total**
Metropolitan Phoenix Consumer Price Index	1.6	5.8	5.0	1.3	4.1	19.0
U.S. Consumer Price Index	3.2	4.3	3.6	1.9	3.7	17.8
Phoenix Area						
All single-family homes:						
Appreciation rate	3.6	3.2	2.9	2.8	2.5	15.9
Median sales price	4.8	6.3	4.0	6.0	4.8	28.7
New single-family homes:						
Appreciation rate	5.7	4.7	4.8	4.2	3.7	25.3
Median sales price	6.0	9.9	8.1	7.4	7.2	45.0
Existing single-family homes:						
Appreciation rate	2.9	2.7	2.6	2.4	2.1	13.4
Median sales price	4.6	4.8	3.2	6.1	4.5	25.4
Median sales price per square foot	2.9	3.0	2.2	3.5	2.4	14.8
All townhouses and condominiums:						
Appreciation rate	NA	NA	1.3	0.7	0.1	NA
Median sales price	1.8	8.8	1.0	3.5	−2.1	13.4
Existing townhouses and condominiums:						
Appreciation rate	NA	NA	1.5	1.1	0.2	NA
Median sales price	2.9	3.3	−1.6	3.1	−0.6	7.2
Median sales price per square foot	3.3	2.5	−1.4	4.3	7.4	16.0

***Calculated at a compound rate**

NA: Not available due to insufficient number of sales

Source: **Arizona Real Estate Center and Center for Business Research, College of Business, Arizona State University. U.S. Consumer Price Index is from the U.S. Department of Labor, Bureau of Labor Statistics.**

New single-family homes that sold for approximately $110,000 to $120,000 had the highest rate of appreciation – about 5.6 percent annually. For resale homes, the highest rate – 4.0 percent – applied to homes selling for $150,000 or more. However, the peak rate for both new and resale homes was only slightly higher than the rate for all homes priced greater than $100,000.

The least expensive homes appreciated less than other homes; resale single-family homes priced less than $40,000 did not appreciate at all. Resale townhouses in the same price range depreciated more than 3 percent.

TABLE 2
MEDIAN RATE OF METRO PHOENIX HOME APPRECIATION
By Geographic District, Per Quarter, Single-family Only

*District Number and Name**		*1981-83*	*1984*	*1985*	*1986*	*1987*	*1981-87*
1N	North Scottsdale	0.9	0.9	1.2	0.9	0.9	0.9[H]
1S	South Scottsdale	0.7	0.7	0.6	0.6	0.6	0.6
2	Paradise Valley	1.3	1.0	0.9	0.7	0.8	0.8[H]
3	North Sunnyslope/Moon Valley	0.7	0.7	0.6	0.6	0.5	0.6[L]
4N	Northwest Phoenix	0.9	0.8	0.6	0.6	0.5	0.6[L]
4S	Metrocenter	0.4	0.6	0.6	0.4	0.5	0.5[L]
5	Sun City/Youngtown/Peoria	1.2	1.3	0.9	0.9	0.7	0.8[H]
6	Glendale	0.8	0.7	0.6	0.5	0.5	0.6[L]
7	Christown	0.5	0.5	0.5	0.5	0.4	0.5[L]
8	North Central Phoenix	0.6	1.0	1.1	0.7	0.7	0.8
9	East Camelback	0.6	1.0	0.9	0.7	0.7	0.8
10	East Central Phoenix	0.6	1.1	0.5	0.8	0.4	0.7
11	Mid-town Phoenix	0.5	0.8	1.1	0.8	1.0	0.8
12	West Central Phoenix	0.7	0.7	0.7	0.6	0.7	0.7
13	Maryvale	0.5	0.5	0.5	0.4	0.3	0.4[L]
14	Downtown/South Central Phoenix	0.0	1.0	0.2	0.7	0.8	0.7
15	South Phoenix/Ahwatukee	0.8	1.1	0.7	0.9	0.7	0.8[H]
16N	North Tempe	0.7	0.2	0.7	0.8	0.5	0.7
16S	South Tempe	0.7	0.5	0.7	0.6	0.5	0.6[L]
17N	North Mesa	1.0	0.5	0.6	0.8	0.7	0.7
17S	South Mesa	0.9	1.0	0.9	0.7	0.6	0.8
18	East Mesa	1.2	0.9	0.9	0.9	0.9	0.9[H]
19	Chandler/Gilbert	0.9	0.9	1.1	0.9	0.9	0.9[H]
20	Western Suburbs	1.2	0.6	1.0	0.6	0.4	0.6
21	Deer Valley	1.0	0.7	0.6	0.6	0.5	0.6[L]
22W	Sun City West/Rural Maricopa Co.	1.6	2.2	2.5	1.7	2.0	2.1[H]
TOTAL, METROPOLITAN PHOENIX		0.8	0.8	0.7	0.7	0.6	0.7

*District numbers correspond to the statistical districts in Figure II on page 6.

[H] The mean associated with this median is significantly higher than the mean for all of metropolitan Phoenix, tested at the .01 level of statistical significance.

[L] The mean associated with this median is significantly lower than the mean for all of metropolitan Phoenix, tested at the .01 level of statistical significance.

Source: Arizona Real Estate Center, College of Business, Arizona State University. District designations are copyrighted by the Maricopa County Housing Study Committee.

TABLE 3
COMPARISON OF SINGLE-FAMILY-HOME TO TOWNHOUSE/CONDOMINIUM APPRECIATION
By Combined Geographic District, Per Quarter, 1981-87

	Median Percent Change Per Quarter	
District	*Single-family*	*Townhouse/Condominium*
North Scottsdale/Paradise Valley	0.9	0.4
South Scottsdale	0.6	0.2
North Central Phoenix	0.6	−0.1
Northwest Phoenix	0.6	−0.1
Sun City/Youngtown/Peoria	0.8	0.3
Glendale	0.6	0.1
West Phoenix	0.5	−0.1
East Central and South Phoenix	0.8	0.2
Tempe	0.6	0.1
Southeast Valley	0.8	0.6
West Valley	1.1	1.3
North Valley	0.6	0.1
TOTAL METROPOLITAN PHOENIX	0.7	0.2

Source: Arizona Real Estate Center, College of Business, Arizona State University

New vs. Resale Homes

While a "new" single-family home (defined as one constructed and later resold between 1981 and 1987) appreciated faster than an existing home in all price ranges greater than $70,000, the difference is largely illusory. The more rapid appreciation rate of new homes - nearly double the rate of existing homes - lasted only until the first resale of the home. At least a portion of the gain reflects additional expenses that most buyers of new homes incur in making improvements, such as landscaping, which add to the value of the property. Further, new homes generally are more expensive than resale homes, even on a price-per-square-foot basis. Thus, new homes appreciate faster mainly because of improvements and higher prices.

In contrast to single-family homes, new townhouses appreciated no faster than resale units from 1981 to 1987. One reason for the lower townhouse appreciation rate is the smaller price difference between new and existing townhomes. However, other factors such as relatively low demand for townhomes, probably better explain the difference.

By Geographic Area

Housing appreciation rates vary throughout the Valley (see Table 2), but most of the deviation can be explained by variations in price and the proportion of new homes. While the 1981-87 appreciation rate in a number of districts (illustrated in Figure II) was significantly different from the metro total in a statistical sense, the difference usually was slight in a practical sense. The annualized rate ranged from 2 to 4 percent in all districts except Maryvale, which was slightly lower, and Sun City West, which was considerably higher.

The highest appreciation rates occurred in the newer and/or more expensive districts of North Scottsdale and Chandler/Gilbert and in the retirement areas of Sun City West and East Mesa. The lowest appreciation rates were measured in the older and/or less expensive areas of Phoenix, including Maryvale, Christown and Metrocenter. In South Tempe and Glendale, the rates were anomalies. They were lower than expected in all price ranges and housing types, due primarily to an infrequency of homes with high appreciation rates.

Between 1981 and 1987, the appreciation rate in most districts ranged from steady to a modest decline, similar to the minimal deceleration measured Valleywide. In several districts, the rate was erratic from year to year, but this largely results from few homes reselling. The most significant downward trends occurred in Paradise Valley, Sun City and the western suburbs. Rates in Paradise Valley and Sun City fell from the second and third-highest overall in 1981-83 to slightly greater than the metro median in 1987. The western suburbs, which had ranked third-highest, dropped below the metro median in 1987. Only in Sun City West, North Scottsdale, East Mesa and Chandler/Gilbert did home values consistently appreciate faster than the metro median.

Only in Sun City West and midtown Phoenix did home appreciation keep up with the Valley's 4.1 percent rate of inflation in 1987 – all other areas recorded slower appreciation. During 1981-87, the appreciation rates for North Scottsdale, East Mesa, Chandler/Gilbert and Sun City West have kept up with metro Phoenix inflation.

The small number of townhouses that sold more than once prevented using a geographic division with the same amount of detail as that for single-family homes. Except in the West Valley, where townhouse sales occurred primarily in Sun City West, the appreciation rate for townhouses was less than that for single-family homes (see Table 3). The geographic pattern was similar for townhouses and single-family homes.

OUTLOOK

Little change in the rate of appreciation for either single-family homes or townhouses is likely in 1988. After the aberrations of the 1970s, the residential housing market has returned to the stable conditions of preceding decades. The general inflation rate, housing affordability and supply-demand relationships remain relatively steady. An exception might be a continuation of the falling demand for townhouses, particularly for resale units, which could lower their appreciation rate slightly.

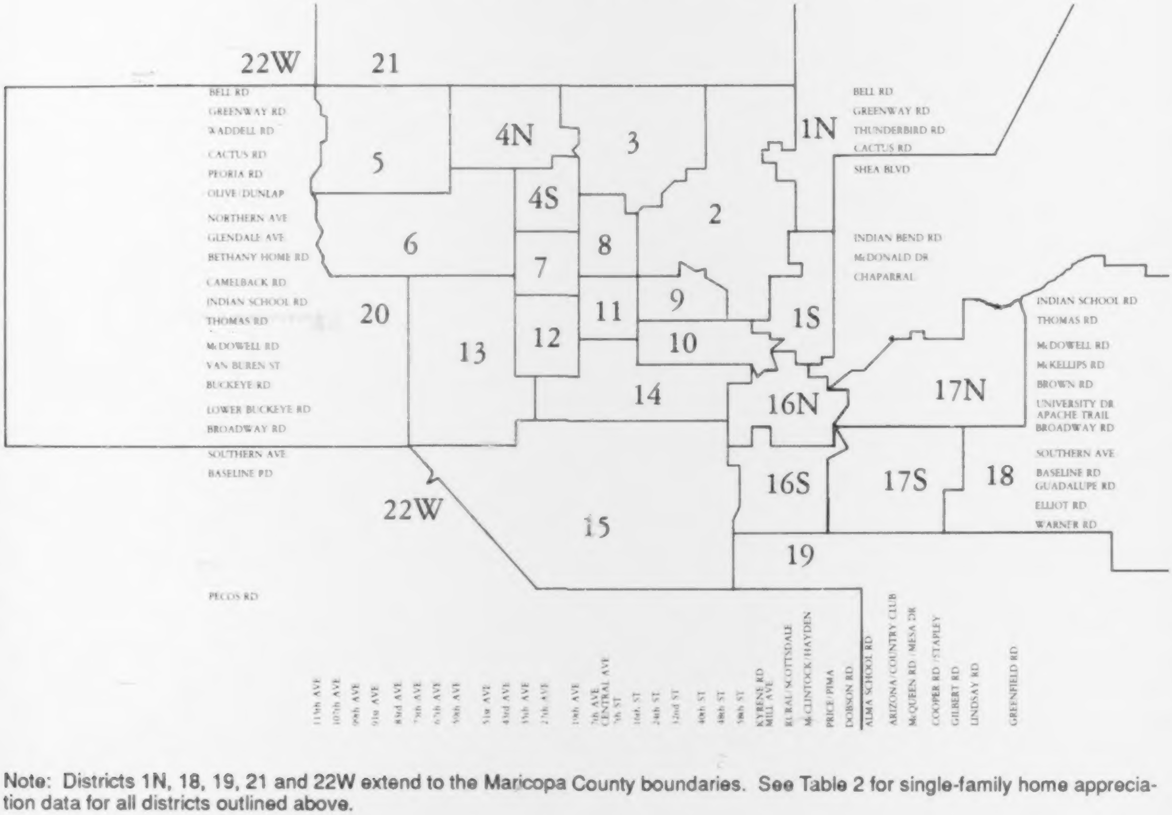
The current trend to purchase larger, more expensive homes should continue to widen the spread between appreciation rates for higher-priced and lower-priced homes. However, the higher and lower appreciation rates should offset each other, except in those areas dominated by homes at either end of the price spectrum. Overall, appreciation rates in 1988 can be expected to approximate current levels.

– **Sharla Kivett,** *Research Analyst*
Arizona Real Estate Center

Complete Report Available

This article summarizes a more detailed report on the appreciation of homes in the Phoenix area during the 1980s. Copies of the complete report, which includes a number of tables with textual interpretation, as well as analysis by district, may be obtained by calling or writing the Arizona Real Estate Center, College of Business, Arizona State University, Tempe, AZ 85287; (602) 965-5440.

FIGURE II
PHOENIX METROPOLITAN AREA STATISTICAL DISTRICTS


22W
21
1N
4N
3
5
4S
2
6
8
7
9
11
20
1S
12
10
13
14
16N
17N
16S
17S
18
22W
15
19
BELL RD
GREENWAY RD
WADDELL RD
CACTUS RD
PEORIA RD
OLIVE/DUNLAP
NORTHERN AVE
GLENDALE AVE
BETHANY HOME RD
CAMELBACK RD
INDIAN SCHOOL RD
THOMAS RD
McDOWELL RD
VAN BUREN ST
BUCKEYE RD
LOWER BUCKEYE RD
BROADWAY RD
SOUTHERN AVE
BASELINE RD
PECOS RD
BELL RD
GREENWAY RD
THUNDERBIRD RD
CACTUS RD
SHEA BLVD
INDIAN BEND RD
McDONALD DR
CHAPARRAL
INDIAN SCHOOL RD
THOMAS RD
McDOWELL RD
McKELLIPS RD
BROWN RD
UNIVERSITY DR
APACHE TRAIL
BROADWAY RD
SOUTHERN AVE
BASELINE RD
GUADALUPE RD
ELLIOT RD
WARNER RD
115th AVE
107th AVE
99th AVE
91st AVE
83rd AVE
75th AVE
67th AVE
59th AVE
51st AVE
43rd AVE
35th AVE
27th AVE
19th AVE
7th AVE
CENTRAL AVE
7th ST
16th ST
24th ST
32nd ST
40th ST
48th ST
56th ST
KYRENE RD
MILL AVE
RURAL/SCOTTSDALE
McCLINTOCK/HAYDEN
PRICE/PIMA
DOBSON RD
ALMA SCHOOL RD
ARIZONA/COUNTRY CLUB
McQUEEN RD/MESA DR
COOPER RD/STAPLEY
GILBERT RD
LINDSAY RD
GREENFIELD RD

Note: Districts 1N, 18, 19, 21 and 22W extend to the Maricopa County boundaries. See Table 2 for single-family home appreciation data for all districts outlined above.

Source: Phoenix Metropolitan Housing Study Committee

'87 Valley Home Prices Rise By Smallest Amount Since 1982

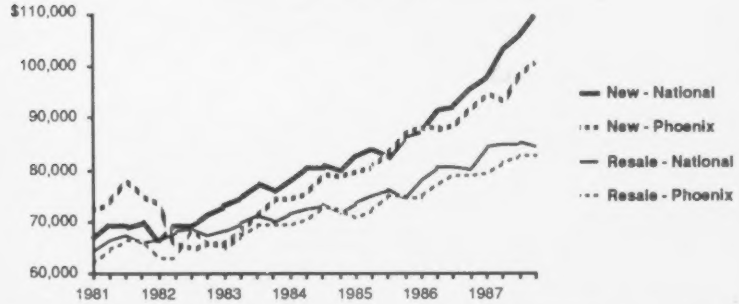
The median price of all homes sold in the Phoenix metropolitan area during 1987 was $80,050, an increase of only 2.6 percent from 1986. This advance was the smallest since 1982. Even though prices rose, the percent change was smaller than in 1986 in all categories. Prices of new single-family homes accelerated the most (7.2 percent), comparable to 1986 but lower than in 1984 or 1985.

The median price on resale single-family homes increased 4.5 percent over 1986, slowing from 6.1 percent the previous year. The median price per square foot advanced only 2.4 percent, indicating that buyers are purchasing larger homes. Thus, the change in price reflects more than simple inflation.

Townhouse and condominium prices were lower than in the previous year. The price level on resale townhouses/condominiums depreciated 0.6 percent, while new units dropped 5.5 percent, representing the first time since 1983 that new townhome prices fell from the prior year. The median price per square foot for resale townhomes was 1.4 percent higher than in 1986, suggesting that buyers purchased smaller homes for their money.

The median price of a single-family home in the Phoenix area has been lower than the national median during most of the 1980s. New-home prices in metro Phoenix were higher than those nationally in 1981, but local prices have been increasing at a slower rate since then, resulting in a growing spread between national and local prices. Phoenix resale prices have been lower than those nationally throughout most of the 1980s (see Figure I).

FIGURE I
MEDIAN SALES PRICE OF SINGLE-FAMILY HOMES
National vs. Phoenix Area



Source: Arizona Real Estate Center, College of Business, Arizona State University

NUMBER OF SALES

Home sales in the Phoenix area during 1987 posted the second highest total of the 1980s (59,250), down 6.7 percent from the 1986 record but 7.2 percent greater than the third highest total. The last quarter was weaker than the first three quarters, primarily due to higher mortgage rates and economic uncertainty.

Sales of previously owned homes fared better than new home sales in 1987, with almost as many resale homes purchased as in 1986; new home sales fell. Resale townhouses/condominiums represented the only category in which sales outperformed those of 1986.

The market share of each housing type has not changed significantly. The proportion of single-family homes sold dipped during the first quarter, offset primarily by the greater proportion of previously owned townhomes sold; both categories returned to 1986 levels by year-end. Single-family homes accounted for 81 percent of total home sales in

TABLE 1
METROPOLITAN PHOENIX HOME SALES

	Single Family			Townhouse/Condominium			
Median Sales Price	*Resale*	*New*	*Total*	*Resale*	*New*	*Total*	*Grand Total*
1981	$65,000	$74,800	$65,900	$60,000	$64,400	$60,500	$65,000
1982	65,000	66,100	65,500	59,725	47,025	57,000	64,325
1983	68,000	70,050	68,650	61,450	51,650	58,000	67,000
1984	71,250	76,950	73,000	63,500	62,600	63,100	71,025
1985	73,500	83,200	75,925	62,475	65,050	63,700	74,000
1986	78,000	89,375	80,500	64,400	69,125	65,900	78,000
1987	81,550	95,825	84,400	64,000	65,350	64,500	80,050
Number of Sales							
1981	35,000	2,410	37,410	5,260	610	5,870	43,280
1982	23,880	3,960	27,840	4,050	1,390	5,440	33,280
1983	33,640	9,560	43,200	5,060	2,540	7,600	50,800
1984	37,180	10,040	47,220	5,170	3,270	8,440	55,660
1985	38,610	10,170	48,780	4,860	2,740	7,600	56,380
1986	43,950	8,790	52,740	7,910	2,860	10,770	63,510
1987	41,380	6,840	48,220	9,020	2,010	11,030	59,250

Source: Arizona Real Estate Center, College of Business, Arizona State University; from data supplied by Marketron Services, Inc., Phoenix.

1987, while townhomes made up the other 19 percent.

OUTLOOK

Economic uncertainty and recessionary concerns pervade analysis of future home sales. Since the decision to purchase a home requires a long-term commitment, buyers must appraise their future financial prospects as well as the potential impact of state and national economic developments.

If mortgage rates perform as predicted (see affordability article, page 9), they should not exert pressure that would cause sales to decline.

Equilibrium in housing supply and demand should not change significantly; thus, prices should not be affected by shortages or surpluses. Price levels can be expected to rise more than the rate of inflation in those markets where consumers are purchasing larger homes with more amenities. Prices may continue to fall in the market for townhouses/condominiums, particularly in those areas where buyers are concerned about resale prospects.

During 1988, if mortgage rates remain relatively stable, if prices do not rise significantly, and if consumer confidence does not deteriorate substantially, sales can be expected to approximate the level of second half 1987.

The number of new Valley residents during 1988 is expected to be similar to the 1987 total (see related article, below). If this prediction is realized, new residents would increase the demand for housing units by approximately the same amount as in 1987.

– **Sharla Klvett,** *Research Analyst*
Arizona Real Estate Center

Reporting of Data

The data published in this article are derived from Maricopa County's legally recorded home sales. Since some sales are not recorded, the numbers slightly underestimate total sales.

Because the recording of a real estate transaction does not reveal whether the property is new, the Center uses a separate procedure to make this determination. However, the number of new homes sold is underestimated, and the number of existing homes sold is overestimated, both by the same undetermined amount.

Net In-Migration to Valley Plunges During 1987

The net inflow of people to the Phoenix metropolitan area during fourth quarter 1987 slowed to a trickle. At only 4,000, net in-migration nearly matched the low recorded in the depths of the 1981-82 recession. Total population at year-end approximated 1,993,000.

In 1986, the flow of people to the Valley began to diminish from the 1985 record. The reduction was gradual until after first quarter 1987, when net in-migration dropped from 12,000 to 6,000 (see Figure I). For all of 1987, net in-migration totaled 30,000, less than one-half the 1986 level. Since 1970, the annual average has been approximately 44,000.

Fluctuations in net in-migration result mostly from changes in in-migration, not out-migration; and in-migration varies with local employment opportunities. New job creation slowed sharply in late 1986 and remained weak throughout 1987. As a result, in-migration to the Phoenix area declined from roughly 162,000 in 1986 to 135,000 in 1987.

Out-migration does not vary much over time. Between 1986 and 1987, it rose slightly, from approximately 100,000 to 105,000. Many of the thousands of laid-off construction workers probably left the Valley.

The ratio of people moving to, versus from, the Valley varies from somewhat more than 1.5 (three people moving in for every two who move out) during economic expansions to slightly less than 1.33 (four people moving in for every three who move out) during recessions.

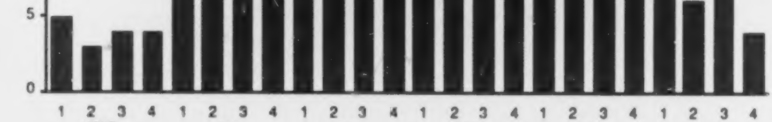
Fluctuations in in-migration have substantial effects on the Valley, particularly on certain businesses and industries. For example, migration has considerable impact on apartment absorption, discussed in the January 1988 *Arizona Business.* Vacancy rates cannot decrease much when net growth is as slow as in the fourth quarter.

Migration flows also directly affect home sales. An exact estimate of the impact is difficult to ascertain because of data insufficiencies. If the average newcomer household size is 2.7 people (equivalent to that of the resident population), the annual number of newcomer households has ranged from 46,000 to 63,000 during the 1980s. According to the *Inside Phoenix* study, since the early 1980s, nearly one-third of these households purchased a home within one year of their arrival, accounting for 16,000 to 19,000 sales per year. This number, in turn, represents one-fourth to one-third of annual home sales in the Phoenix area.

Because of the lower number of in-migrants, the estimated number of home purchases by newcomers dropped from approximately 19,000 in 1986 to 16,000 in 1987. The total number of homes sold fell slightly more than 4,000.

– **Tom R. Rex**
Research Manager

FIGURE I
NET IN-MIGRATION TO MARICOPA COUNTY



Source: Center for Business Research, College of Business, Arizona State University

1987 Valley Home Affordability Slowing

Rising household income and relatively stable annualized mortgage interest rates offset increases in home prices during 1987, modestly boosting the annual resale housing affordability index to 112, its highest level since the indexes began in 1981. New home affordability maintained the 1986 record level of 95 but did not improve. (See Table 1 for definitions of the terms used in this article).

The greater improvement in resale affordability than in new home affordability widened the spread between the indexes to the largest ever – 17 points.

Even though the 1987 annual level of affordability was high (due to low mortgage rates during the first quarter), the level for both new and resale homes fell from the first quarter record during each subsequent quarter of 1987.

An index of 100 or more indicates that a median-income household is able to qualify for a median-priced home, assuming a 15 percent down payment; a fixed-rate, conventional, 30-year mortgage; and an income qualification factor of 28 percent. During 1987, a median-income household could afford a $91,350 home – more than the $81,550 median-priced resale home but less than the $95,825 median-priced new home.

TABLE 1
HOUSING AFFORDABILITY:
DEFINITION OF TERMS

Term	Definition
Affordability index	Defined in terms of the median-income household. An index of 100 indicates that a median-income household is able to qualify for a median-priced home under the assumptions provided in this table, but an index of 90, for example, suggests that such a household earns only 90 percent of the needed income.
Income	Median gross household income is estimated from median effective buying income (similar to disposable income), published in *Sales and Marketing Management*.
Income qualification factor	Federal National Mortgage Association (FNMA) guidelines state that "monthly housing expenses should not represent more than 25 to 28 percent of gross monthly income." The upper limit is used.
Interest rate	The effective interest rate on 30-year, fixed-rate, conventional mortgage loans for single-family homes includes the contract interest rate plus fees and charges, or "points," amortized over a 10-year period, computed by the Federal Home Loan Bank Board.
Loan amount	A down payment of 15 percent is assumed.
Median sales price	Single-family homes only. Metropolitan Phoenix data from real estate recordings in Maricopa County. National resale home data from National Association of Realtors; national new home data from U.S. Bureau of the Census.
Monthly housing payment	As defined by FNMA, housing expenses comprise principal, interest, taxes and insurance. Data on taxes and insurance are not available. They are estimated at 15 percent of total housing expenses, using information supplied by the National Association of Home Builders.

Source: Arizona Real Estate Center, College of Business, Arizona State University

TABLE 2
HOUSING AFFORDABILITY INDEXES
Metropolitan Phoenix; Single-family Only

			Resale Homes			**New Homes**		
Year	*Median Gross Monthly Income*	*Effective Interest Rate*	*Median Sales Price*	*Monthly Housing Payment*	*Affordability Index*	*Median Sales Price*	*Monthly Housing Payment*	*Affordability Index*
1981	$1,990	16.7%	$65,000	$910	61	$74,800	$1,050	53
1982	2,160	16.7	65,000	910	67	66,100	920	66
1983	2,270	13.7	68,000	790	80	70,050	820	78
1984	2,470	14.2	71,250	860	81	76,950	920	75
1985	2,640	12.9	73,500	810	92	83,200	910	81
1986	2,800	10.6	78,000	720	109	89,375	820	95
1987	3,000	10.6	81,550	750	112	95,825	880	95
Quarter								
1st 1987	$2,920	9.4%	$79,500	$660	123	$94,500	$790	104
2nd 1987	2,970	10.6	81,500	750	111	92,925	860	97
3rd 1987	3,020	10.8	82,725	780	109	98,275	920	92
4th 1987	3,080	11.4	82,800	810	106	101,000	990	87

Source: Arizona Real Estate Center, College of Business, Arizona State University. Interest rates are from the Federal Home Loan Bank Board *News*.

CHANGES IN 1987 AFFORDABILITY

The first quarter's 9.4 percent interest rate was the lowest since the index began. By year-end, interest rates had risen back to 11.4 percent, still lower than in any year prior to 1986. Prices on new single-family homes rose slightly faster than household income, coupling with the increase in interest rates to push monthly payments on the median-priced home 25 percent higher. As a result, affordability dropped from an index level of 104 during the first quarter to the fourth quarter's 87.

Resale home prices advanced slightly slower than household income, widening the spread in affordability between new and resale homes. The median resale housing payment rose almost 23 percent, lowering affordability from the first quarter's 123 to 106 at year-end.

Interest rates have been the strongest determinant of affordability during the 1980s. Even though prices rose 28 percent for new homes and 25 percent for resale homes from 1981 to 1987, monthly housing payments fell 16 percent for new and 18 percent for resale. This drop was due to the six-percentage-point decline in annualized interest rates.

AFFORDABILITY BY INCOME LEVEL

The preceding discussion assumed that a household earns the median income. Of course, most people do not earn this amount – half earn more and half earn less. Affordability for specific households can be determined by varying the median income while holding all other factors constant (see Table 3).

For example, a household earning $25,000 annually could afford a home but one that cost closer to $63,000 – lower than the price affordable to the median-income household. In contrast, a household earning $45,000 could afford a home costing $113,850, higher than the median-priced home.

NATIONAL AFFORDABILITY

Homes were more affordable locally than nationally in 1987; local incomes were higher, while interest rates and prices were lower. The national index values for both new homes (87) and resale homes (106) were lower than those locally.

Since 1981, new home prices have risen 51 percent nationally but only 28 percent in the Phoenix area. The median household income rose by a smaller amount nationally than locally (45 vs. 51 percent), and mortgage rates fell approximately the same amount on both levels.

AFFORDABILITY BY CITY

Housing affordability varies throughout the Valley, due primarily to deviations in housing prices and income levels. Only mortgage rates remain standard for all areas.

Among the larger cities for which income estimates are available, affordability of resale homes during 1987 was greatest in Glendale and Phoenix, approximately 11 index points higher than the median for the metropolitan area. Only Scottsdale's resale home affordability was lower than that for the metro area.

Glendale, the only city in which new homes were affordable to the median-income household, joined Mesa in having an affordability level greater than the metro median. New home affordability was near the metro level in Phoenix but lower in Tempe and Scottsdale.

AFFORDABILITY UNDER DIFFERENT ASSUMPTIONS

The affordability index can change substantially if the assumptions underlying its calculation are varied, as income was varied in Table 3. For example, reducing the amount of the down payment from 15 percent to 10 percent of the purchase price would lower affordability approximately six index points. If prices had remained constant at 1986 levels, affordability would have risen about six points.

Shortening the term of the loan does not reduce affordability by an appreciable amount until the length is cut to approximately 20 years. Lengthening the term past 30 years would have almost no impact.

Had 1987 mortgage rates been one percentage point lower (around 9.6 percent), affordability would have been about nine index points higher, allowing the median-income household to purchase a new home.

OUTLOOK

Mortgage rates currently are the key to affordability. If they decline slightly during the first quarter of 1988, then rise past the 1987 level during the latter half of the year, as some forecasters predict, affordability should not change much in 1988. Any change probably would be downward.

Home prices can be expected to increase, due primarily to the trend toward purchasing larger homes with more amenities. Demographics should start to affect the type of home purchased as baby boomers move into larger, more expensive homes, leaving "starter" homes behind. As a result, future median prices of new homes should rise. The ease with which existing homes can be sold also may be affected, slowing price increases on resale homes.

The median household income should continue to advance at approximately the current rate during 1988. If an economic slowdown develops in 1989, as some are predicting, income growth would slow as well, adversely affecting affordability.

If these changes in income, housing prices and interest rates occur, they should result in little or no improvement in affordability during 1988 unless interest rates were to fall unexpectedly. The spread between the new home and existing home indexes probably will widen during the year.

– **Sharla Kivett,** *Research Analyst*
Arizona Real Estate Center

TABLE 3
AFFORDABLE HOME PRICE AND MONTHLY PAYMENT
By Level of Income
(Metropolitan Phoenix; Effective Interest Rate of 10.6 Percent)

Gross Monthly/Annual Income	Sales Price	Monthly Housing Payment	Affordability Index
$1,675/$20,000	$50,850	$470	100
$2,075/$25,000	63,000	580	100
$2,500/$30,000	75,900	700	100
$2,925/$35,000	88,800	820	100
$3,325/$40,000	101,700	940	100
$3,750/$45,000	113,850	1,050	100
$4,175/$50,000	126,750	1,170	100

Source: Arizona Real Estate Center, ASU College of Business

'87 Valley Inflation Bounces Back from '86 Record Low

The annual average increase during 1987 in the Metropolitan Phoenix Consumer Price Index bounced back to 4.1 percent from 1986's record low 1.3 percent. Despite the 1987 acceleration, inflation remained lower than in 1984 and 1985. Nearly all of the fluctuation since 1985 resulted from swings in oil prices, reflected most directly in the CPI's gasoline category.

Several methods may be used to calculate the inflation rate from the CPI. In this article, the annual average percent change is used: the average of the four quarterly index values for a year, compared to the average of the previous year. The other widely used method is employed in the quarterly CPI reports (see the February 1988 *Arizona Business).* It compares the index value at the end of the year to the value at the end of the previous year. Because the inflation rate accelerated during 1987, the annual average increase was less than the year-end inflation rate (4.7 percent).

CONSUMER PRICES IN 1987

After plunging 25 percent during 1986, gasoline prices rose nearly 10 percent in 1987. Likewise, the entire transportation category swung from a 6 percent decline in 1986 to a 9 percent advance in 1987, accounting for all of the acceleration in the all-items inflation rate. Other than the other goods and services category, which advanced slightly more in 1987, each of the other major categories registered increases similar to or less than in 1986 (see Table 1).

Prices of food and beverages rose just 2 percent in 1987, following five successive years of approximately 4 percent gains. Food-away-from-home prices hardly changed, and food-at-home prices increased only 2.5 percent.

Housing costs, which account for 40 percent of the entire index, rose only 2.2 percent, matching the 1986 gain. Inflation in shelter expenses slowed as renters' costs decreased for the first time on record. This decline was offset, however, by an ad-

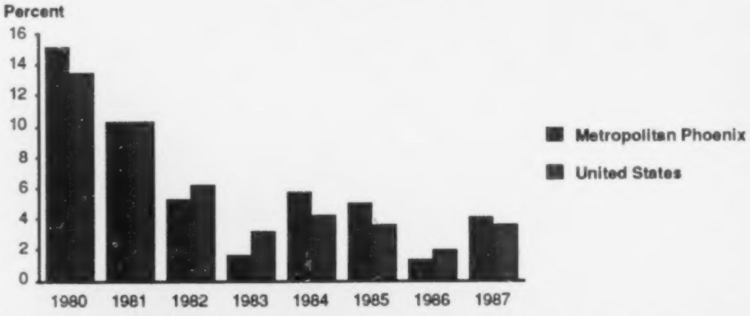
TABLE 1
METROPOLITAN PHOENIX CONSUMER PRICE INDEX
Annual Average, Selected Items

Expenditure Category	*1987 Relative Importance*[1]	*1987 Index (1982-84 = 100)*	Percent Change *1987*	Percent Change *1986*	Percent Change *1985*
ALL ITEMS	100.0%	115.5	4.1	1.3	5.0
Food and Beverages	18.7	114.6	1.9	4.2	4.3
Food	17.5	114.2	1.8	4.0	4.3
Food at Home	11.3	114.4	2.5	4.1	4.1
Cereal and Bakery Products	1.5	125.0	4.4	5.8	7.6
Meats, Poultry, Fish, and Eggs	3.3	107.6	2.9	2.5	1.1
Dairy Products	1.5	110.6	2.8	2.7	3.3
Fruits and Vegetables	1.9	119.2	3.4	1.7	6.3
Other Food at Home	3.1	114.9	0.4	6.8	4.5
Food Away from Home	6.1	114.0	0.3	3.8	4.8
Housing	39.5	111.4	2.2	2.2	4.5
Shelter	25.8	112.6	2.0	3.5	5.2
Renters' Costs	8.5	117.6	–0.4	2.8	5.9
Homeowners' Costs	16.5	114.5	3.2	3.8	4.3
Fuel and Other Utilities	6.4	109.9	3.7	–2.0	1.8
Gas (piped) and Electricity	4.0	107.3	4.6	–3.7	1.6
Household Furnishings/Operations	7.2	109.1	1.2	1.4	4.4
Apparel and Upkeep	4.8	110.7	1.8	1.5	3.8
Transportation	21.2	114.3	8.9	–5.6	5.4
Private Transportation	19.6	114.6	9.4	–5.7	5.5
New and Used Cars	7.3	122.2	6.9	–1.2	4.2
Motor Fuels	5.5	82.5	9.5	–25.1	3.0
Public Transportation	1.6	107.8	3.0	–4.7	2.7
Medical Care	6.9	141.0	4.4	5.7	10.0
Entertainment	4.6	130.9	6.4	6.8	10.0
Other Goods and Services	4.3	125.5	5.9	4.6	5.4

[1] Expressed as a percent of all items. The relative importance of the seven major categories sums to 100.0 percent. Only selected detail items are shown; thus, the relative importance of these items will not sum to that of the major categories.

Source: Center for Business Research, College of Business, Arizona State University; in cosponsorship with Valley National Bank.

FIGURE I
METROPOLITAN PHOENIX AND U.S. CONSUMER PRICE INDEXES
Annual Percent Changes



Source: Center for Business Research, College of Business, Arizona State University; in cosponsorship with Valley National Bank.

CPI Description Available

A description of the Consumer Price Index is available on request from the Center for Business Research. It answers common questions concerning the CPI; for example:

- What is the difference between the CPI for all urban consumers (CPI-U) and the CPI for urban wage earners and clerical workers (CPI-W)?
- What is the relationship between the CPI and the inflation rate, and how is this rate calculated?
- Is the CPI a cost-of-living index?
- How is the CPI applied in contractual agreements?

A copy of the CPI description can be obtained by calling (602) 965-3961.

vance in fuel and utility costs; these rates had gone down in 1986.

Medical care inflation slowed further in 1987; prior to 1986, double-digit rates were measured in six of seven years. Apparel and upkeep costs barely rose for the second straight year, but entertainment costs continued to climb. Only in 1983 did entertainment expenses fail to rise at least 6 percent.

COMPARISON AREAS

The increase during the 1980s in the Metropolitan Phoenix CPI has barely surpassed the gain in the national CPI (see Figure I). In 1987, the rate in the Phoenix area was slightly higher only because of the more rapid acceleration in gasoline prices early in the year. Considerably greater inflation in the transportation category offset the area's lower inflation rates in most other categories (see Table 2).

Inflation in the Tucson area was slightly less than in the Phoenix area during 1987. Data on the Metropolitan Tucson CPI are available since 1983 from the Division of Economic and Business Research at the University of Arizona. Since the Tucson CPI began, the inflation rates in the two areas have been equivalent at just more than 20 percent for the nearly five-year period.

1987 FORECAST ACCURACY

Last year at this time, nearly all forecasts of 1987 national inflation fell within a 2.5-to-4-percent range. The annual average of 3.7 percent was slightly higher than the consensus value. The Center's forecast of Phoenix-area inflation – 3.5 percent – likewise was slightly too low, a result of the very rapid increase in gasoline prices at the beginning of the year.

1988 OUTLOOK

The annual average increase in the CPI is likely to barely exceed 4 percent in 1988, both nationally and in the Phoenix area. This implies year-to-year rates comparable to, or slightly less than, the year-end figures of approximately 4.5 percent in each area.

Nationally, the consensus forecast of *Blue Chip Economic Indicators* was 4.3 percent, with nearly all panelists predicting a rate between 4 and 5 percent. Locally, a 4.5 percent inflation rate is foreseen by the *Arizona Blue Chip* panel, with a range of 3.5 to 5.1 percent. The Center's forecast for the Metropolitan Phoenix CPI is slightly lower at 4.2 percent.

– **Tom R. Rex**
Research Manager

TABLE 2
CONSUMER PRICE INDEX
METROPOLITAN PHOENIX AND UNITED STATES
1987 Annual Average Percent Change

Expenditure Category	*Phoenix*	*United States*
ALL ITEMS	4.1	3.7
Food and Beverages	1.9	4.1
Housing	2.2	3.0
Apparel and Upkeep	1.8	4.4
Transportation	8.9	3.0
Medical Care	4.4	6.6
Entertainment	6.4	3.3
Other Goods and Services	5.9	5.8

Source: Metropolitan Phoenix data compiled by the Center for Business Research, College of Business, Arizona State University, in cosponsorship with Valley National Bank; other data are from the U.S. Department of Labor, Bureau of Labor Statistics.

TABLE 3
METROPOLITAN PHOENIX CONSUMER PRICE INDEX
All Items (1982-84 = 100)

	Quarter				Annual
	I	*II*	*III*	*IV*	Average
1975	49.3	50.1	51.2	52.5	50.8
1976	52.5	53.0	53.9	54.6	53.5
1977	55.7	57.0	58.2	59.3	57.6
1978	60.7	62.5	64.3	66.1	63.4
1979	68.2	71.8	73.8	76.5	72.6
1980	81.8	81.9	84.0	86.7	83.6
1981	89.4	91.1	93.2	95.2	92.2
1982	96.7	97.2	98.2	96.2	97.1
1983	96.5	98.1	99.7	100.2	98.6
1984	102.1	103.6	105.4	106.1	104.3
1985	108.1	109.8	110.1	110.2	109.5
1986	110.3	110.8	111.5	111.4	111.0
1987	113.9	115.5	116.1	116.6	115.5

Source: Center for Business Research, College of Business, Arizona State University

New Base Period

As part of the periodic revision to the CPI (see the November 1987 *Arizona Business*), the U.S. Department of Labor rebased the CPIs they produce to 1982-84 = 100. (For each category, the average of the indexes for those three years was set to equal 100). The same base period has been adopted for the Metropolitan Phoenix CPI, effective with this report.

The all-items index will continue to be available on the old base (1977 = 100 for metro Phoenix) through 1988, but users are urged to convert to the new base immediately. The all-items index is shown in Table 3; similar historical data for other CPI categories, on the 1982-84 base, are available on request from the Center for Business Research.

The new index base will allow direct comparisons of index values for metro Phoenix to those for other areas for the first time. The shift changes the values of the indexes but does not affect percent changes calculated from the indexes, except for small differences due to rounding.

Metro Phoenix CPI

The Metropolitan Phoenix Consumer Price Index (CPI), on which these inflation figures are based, is prepared by the Center for Business Research in the ASU College of Business. The Center conducts comprehensive pricing surveys each quarter, in cosponsorship with Valley National Bank.

GSP Confirms Mid-1987 Quickening of Economic Expansion

Growth of the Arizona Gross State Product accelerated during mid-1987 from the slow rate recorded early in the year.

For the year ending third quarter 1987, GSP advanced an inflation-adjusted 5.4 percent, slightly less than the 5.7 percent long-term average. Adjusted GSP, which excludes the volatile mining and agriculture industries, rose 5.0 percent, up from the 3.8 percent annual rate of first quarter 1987 (see Figure I).

Unadjusted GSP growth was higher than the adjusted rate during first half 1987 because of agriculture's large gains (see Table 1). In the third quarter, however, both agriculture and mining GSP declined, resulting in a greater adjusted rate. Generally, the adjusted rate has a smoother, less extreme, quarterly pattern.

Second quarter GSP growth was substantially higher than previously reported; the first quarter rate was revised down slightly. The quarterly changes reported in Table 1 are subject to considerable further revision. In particular, the first quarter growth rate appears too low, offsetting a too-high rate estimate for fourth quarter 1986 (as indicated by data such as the coincident economic indexes).

SECTORAL GROWTH

The construction industry restrained Arizona's third quarter 1987 economic growth, declining 13 percent from its third quarter 1986 gross product and 16 percent from the second quarter 1986 peak. Construction employment dropped 11 percent (12,000 workers) during the year ending third quarter 1987.

The manufacturing industry led industrial growth, posting a 10 percent gain for the year ending third quarter 1987. It was followed by transportation, communications and public utilities; finance, insurance and real estate; and trade, each of these industries growing at least 6 percent.

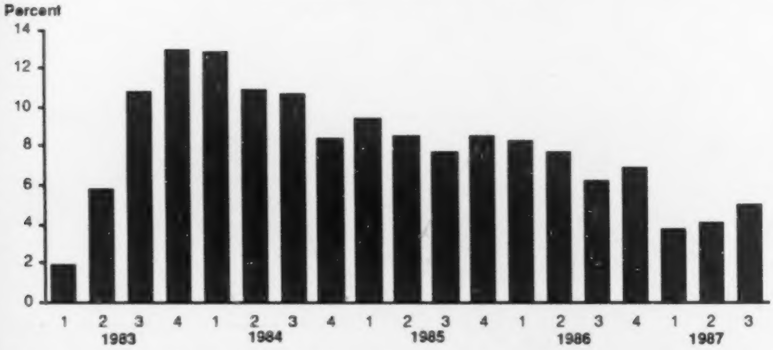
At 3 percent, the government sector continued its slow expansion. Since 1970, its growth rate has exceeded that of the overall economy only during recessionary years. Government's total growth since 1970 (78 percent) was barely one-half as fast as that of the entire GSP (153 percent). Employment in this sector also rose much less (97 percent vs. 151 percent).

OUTLOOK

Moderate growth characterized the Arizona economy between May and August 1987, resulting in adjusted GSP growth rates of 1.5 percent for both the second and third quarters. The expansion slowed in the fall, however, according to the coincident indexes; fourth quarter GSP growth probably was below average. Subpar growth should continue through 1988.

– **Tom R. Rex**
Research Manager

FIGURE I
PERCENT CHANGE IN ADJUSTED GSP
From Same Quarter, Prior Year



Source: Center for Business Research, College of Business, Arizona State University

TABLE 1
ECONOMIC GROWTH

	Arizona Gross State Product				Gross National Product
Quarter	*Billions of Current Dollars, Annualized*	*Quarterly Percent Change (1982 Dollars)*	*Quarterly Percent Change (Adjusted GSP)**	*Annual Percent Change (Adjusted GSP)**	*Annual Percent Change (1982 Dollars)*
First 1986	51.648	3.0	2.6	8.2	3.6
Second 1986	51.965	0.9	1.1	7.9	3.3
Third 1986	52.456	0.2	0.7	6.2	2.6
Fourth 1986	53.673	2.3	2.5	7.0	2.2
First 1987ʳ	55.269	0.1	-0.6	3.8	2.0
Second 1987ʳ.....	56.458	2.1	1.5	4.2	2.4
Third 1987........	57.463	0.9	1.5	5.0	3.2

*The adjusted GSP is the annualized GSP in billions of 1982 dollars, minus the contributions of the agriculture and mining industries.

ʳRevised; quarterly estimates are subject to significant revision.

Source: Center for Business Research, College of Business, Arizona State University. GNP data are from the U.S. Department of Commerce, Bureau of Economic Analysis.

January Purchasing Indicators Up; Prices Jump

All indicators of economic performance were upbeat in January, with the strength reflected in increasing production, employment, and vendor lead times. An unusually high increase in prices signals a growing inflationary problem. Inventory accumulation continued, for the sixth straight month, causing concern about a growing overhang.

As the economy begins its sixth year of growth, it looks a lot livelier than most forecasters had expected after the October financial market downslide. A softening of interest rates in February will help keep the expansion going, although upward price pressures will be a growing problem. Moderate growth should occur throughout 1988, with little chance of a downturn.

PRICES

Prices paid for purchased items jumped in January – the highest increase rate in seven years (since January 1981). The price trend line began tilting upward early in 1987, and the January increase rate indicates that inflation has become a more serious problem. Further new order and production growth will place continuing upward pressure on prices.

DELIVERY TIME

Delivery time on vendor shipments continued to stretch, at about the same rate as in December. Lead times began to lengthen noticeably last June, and the rate of increase has extended at a consistent rate since – typical in an expanding economy.

INVENTORY LEVELS

Inventory levels of purchased materials rose in January, following December's level performance. This increase was the sixth in a row and the largest since September. Inventory levels must be watched closely, for any large upward tilt warns of an inventory overhang, making the economy susceptible to a sharp downswing. However, this may work itself out if new order and production rates continue to increase.

NEW ORDERS

New orders received from customers also went up, at the same rate as in the previous month. While these increases portray a growing economy, both were smaller than in any month since December 1986 and much lower than in the first 11 months of 1987. The expansion appears to be losing some of its bounce.

PRODUCTION

Production accelerated in January at a rate four times greater than in December. Both November and December data reflected very low rates of increase. However, the rate is now back up to the levels of early 1987. If production keeps advancing, it will positively impact employment in the months to come.

EMPLOYMENT

Employment by Arizona firms grew at a greater rate in January than in December – the 13th consecutive monthly hike. Although the increase rate is still a bit lower than those seen in the early months of 1987, it is quite respectable. Employment has grown impressively in almost every month since early 1983.

PURCHASES

Purchases of materials and supplies enjoyed a good increase that was greater than the December rate. This substantial growth was triggered by the jump in production.

– Harold Fearon

Dr. Fearon is the National Association of Purchasing Management Professor in the ASU College of Business.

Arizona Purchasing Survey

Now in its 26th year of monthly reporting, Dr. Harold Fearon's survey of Arizona business conditions utilizes data gathered at the close of each month from members of the purchasing management associations of Arizona and southern Arizona. They indicate the direction - higher, unchanged, or lower - of seven key measures of economic activity in the month just ended. These purchasing managers deal daily with supply, demand, and price factors in the marketplace; their aggregate readings have accurately charted the state's economic course for two decades, providing timely data on turning points.

TABLE 1
JANUARY PURCHASING SURVEY

	Percent of Purchasing Managers Indicating Each Response (January compared to December)		
Key Indicators	*Higher*	*Same*	*Lower*
Prices paid for major commodities	61	37	2
Delivery time from vendors	42	48	10
Purchased materials inventory level	35	40	25
New orders received	34	43	23
Production	36	48	16
Employment	22	69	9
Purchases	46	33	21

Source: Purchasing Management Association of Arizona and the Purchasing Management Association of Southern Arizona

Arizona Leading Index Continues Retreat in December

The Arizona Index of Leading Economic Indicators posted its second consecutive decline in December, to 109.8, one full percentage point below November's revised 110.8 (see Figure I).

Based on 10 statistical economic indicators, the index is designed to predict economic activity up to six months in the future. Seven of the 10 components fell in December.

The greatest negative influence came from a seasonally adjusted decrease in the value of residential building permits, which now has declined in eight of the last 12 months.

Four of the five seasonally adjusted components derived from a survey of Arizona purchasing managers exerted a negative influence in December. Changes in supplier delivery times, inventory levels, new orders, and production pulled the index down; employment was unchanged. Sensitive prices and unemployment claims both lost ground.

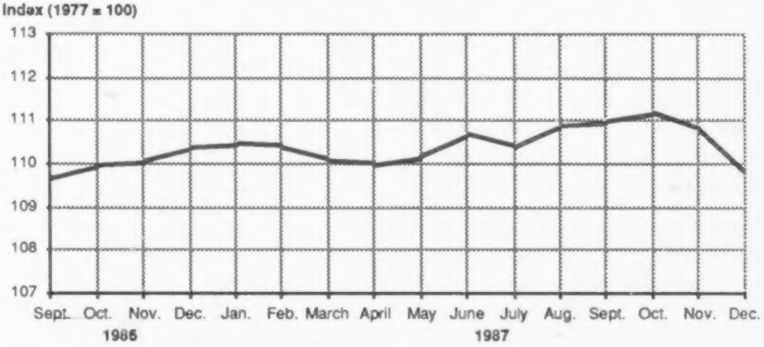
The national money supply (M2) rose again, on a seasonally adjusted basis, after falling in November. The other positive influence on the index was a rise in weekly hours worked in Arizona manufacturing establishments.

OUTLOOK

The index moved upward throughout most of 1987 at a slow and erratic pace, flattening in the spring and finally rising to a new high in October. The final two months brought decreases in the index, which returned it to a level slightly less than that of early 1987.

Movements in the index have been consistent with the recent performance of the Arizona economy. Although a record number of people are employed, the pace of growth is sluggish compared to the early years of the current economic expansion. It is likely 1988 will be another year of relatively slow growth in Arizona.

FIGURE I
ARIZONA INDEX OF LEADING ECONOMIC INDICATORS



Source: Economic Outlook Center, College of Business, Arizona State University

TABLE 1
NET CONTRIBUTION OF INDIVIDUAL COMPONENTS TO THE ARIZONA INDEX OF LEADING ECONOMIC INDICATORS

	Net Contribution⁺			
	Sept.	*Oct.*	*Nov.*	*Dec.*
Delivery Time*	.05	–.01	–.02	–.07
Inventory Levels*	.03	–.06	.07	–.11
New Orders*	–.02	–.01	.07	–.12
Production*	–.05	.02	–.07	–.04
Employment*	–.04	.07	–.01	.00
Residential Building Permits	.32	–.16	.13	–.45
Unemployment Insurance Claims	–.10	.17	–.20	–.07
Average Workweek, Manufacturing	–.25	.09	–.07	.05
Money Supply	.13	.09	–.16	.02
Change in Sensitive Materials Prices	–.05	.00	–.07	–.13
OVERALL INDEX CHANGE (%)	.02	.22	–.33	–.93

⁺The net contribution of each component is calculated by multiplying the monthly percent change in its index by its relative importance.

*Based on indicators from the purchasing management associations of Arizona and southern Arizona.

Source: Economic Outlook Center, College of Business, Arizona State University

During the previous 12 months, the value of residential building permits – a key index component – has declined in eight months. With Arizona population inflows slowing and interest rate uncertainty, neither the necessary supply nor demand conditions exist that would produce dramatic increases in residential activity.

In spite of the falling dollar, employment has not responded as strongly as some analysts expected. Yet, Arizona is still likely to benefit from the weakened dollar as tourism increases and semiconductor firms improve their competitive position in foreign markets.

Although the leading index is now at its lowest level of the past 12 months, the pattern of increase followed by decline offers no significant cause for alarm. The performance of the Arizona economy during first half 1988 should be similar to that of the closing months of 1987. Growth should be positive, but the economic expansion will continue to weaken.

– **Tracy L. Clark,** *Economist*
Economic Outlook Center

ARIZONA ECONOMIC INDICATORS

	Month or Quarter	Value	Percent Change from Previous Period	Percent Change from Year Ago	Year-to-Date Value	Year-to-Date Percent Change from Year Ago
GROSS STATE PRODUCT						
(In Billions of Dollars, at Annual Rate)						
Arizona - Current Dollars	3rd Qtr.	57.463	1.8	9.5	NA	NA
Arizona - 1982 Dollars	3rd Qtr.	48.334	0.9	5.4	NA	NA
CONSUMER PRICE INDEX (1982-84 = 100)						
Metropolitan Phoenix	4th Qtr.	116.6	0.4	4.7	NA	NA
INDEX OF LEADING ECONOMIC INDICATORS (1977 = 100)						
Arizona	Dec.	109.8	–0.9	–0.5	NA	NA
BUILDING PERMITS						
(Total Dollar Value in Thousands)						
Maricopa County	Dec.	203,131	–7	–6	3,848,426	–1
Pima County	Dec.	45,729	6	–9	596,451	–26
Balance of State	Dec.	42,746	15	–14	657,726	–3
Arizona	Dec	291,606	–2	–8	5,102,603	–5
TOTAL HOUSING UNITS AUTHORIZED						
Maricopa County	Dec.	2,065	31	11	28,729	–34
Pima County	Dec.	249	26	–82	6,139	–51
Balance of State	Dec.	953	3	3	11,063	–12
Arizona	Dec.	3,267	21	–21	45,931	–33
HOME SALES						
Maricopa County - Number	Dec.	3,240	–29	–50	59,250	–6
Maricopa County - Median Price	Dec.	83,275	1.4	4.4	80,050	2.6
HOUSING AFFORDABILITY INDEXES						
Metropolitan Phoenix - New Homes	4th Qtr.	87	–5.4	–12.1	NA	NA
Metropolitan Phoenix - Resale Homes	4th Qtr.	106	–2.8	–7.8	NA	NA
MORTGAGE INTEREST RATES						
(Conventional, 30-year, Fixed-rate)						
Maricopa County	Jan.	10.4	–1.9	14.3	NA	NA
POPULATION ESTIMATES						
(In Thousands)						
Maricopa County	4th Qtr.	1,993	0.5	2.7	NA	NA
Arizona	4th Qtr.	3,443	0.5	2.4	NA	NA
ELECTRICAL POWER SALES						
(In Millions of Kilowatt Hours)						
Arizona	Dec.	3,274	18.9	15.0	38,804	8.1

NA = Not Applicable

Source: Center for Business Research, College of Business, Arizona State University

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Quarterly Economic Forecast Update

Growth To Stay Modest in '88, Weaken in '89

Economic growth in Arizona and the Phoenix metropolitan area should continue to be modest in 1988, and conditions may even improve in some sectors. By 1989, the Economic Outlook Center (EOC) expects the economy to weaken, and sufficient uncertainty exists to raise the prospect of a recession. The EOC predicts feeble growth – by Arizona standards – but concludes a downturn may not develop before the decade is over.

Unprecedented levels of uncertainty (at least during the last several years) currently plague analysts of recent economic statistics. The U.S. Index of Leading Economic Indicators dropped in January; however, upward revisions to previously released data muddied the picture. The chaotic events endured by global financial markets several months ago will continue to raise havoc with economic statistics for several months to come.

The same is true for Arizona's statistics. The January increase in Arizona's leading index (see page 15) followed two months of steep declines, sending mixed signals regarding the path of the state economy. In Maricopa County, multifamily building permits, having surged late last year, plummeted in January to virtually zero.

THE NATIONAL ECONOMY

A recent membership survey conducted by the National Association of Business Economists yielded unsettling news. An overwhelming majority of the respondents predicted the nation's next recession will begin in 1989. While NABE's forecasting track record is no less dubious than most, this prediction is a departure from previous surveys that suggested a recession is at least two years away.

The business economists are not alone, nor is their pessimism unfounded. The latest statistical news on the U.S. economy portrays a nation on the cusp between renewed expansion and a pronounced business slump. The good news/bad news scenario is implicit in the fourth quarter 1987 economic statistics.

GNP expanded at a 4.5 percent annual rate during the quarter, a robust performance by any standard, but disturbing trends were evident in some categories. Consumer spending fell more than 3 percent from the prior quarter. Since it is widely believed the durability of the current expansion is due mostly to strong consumption, many analysts see the

See "Forecast," page 2

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ARIZONA BUSINESS

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decline as a harbinger of more bad news down the road.

Additional concern stems from the apparent strength of the composite GNP figure, which derived primarily from a surge in business inventories. This increase can be interpreted in two ways. Either U.S. producers are bullish about their prospects for increased sales, or goods are piling up because production surpassed expected sales, foreshadowing cutbacks in employment and output later this year.

Facts and figures related to the trade deficit are another mixed bag with which economic prognosticators must contend. Exports finally surged last year in response to the sustained fall in the dollar's exchange value. Nevertheless, the huge volume of U.S. imports caused the real trade deficit to persist at an annual rate well in excess of $100 billion.

TABLE 1
1988 AND 1989 ECONOMIC FORECASTS: UNITED STATES

	Actual *1987*	**Forecast** *1988*	**Forecast** *1989*
Gross National Product			
Millions of 1982 Dollars	3,819.6	3,903.6	3,985.6
Percent Change	2.9	2.2	2.1
Industrial Production			
Percent Change	3.8	3.2	2.8
Net Exports			
Billions of 1982 Dollars	–134.3	–105.7	–82.3
Housing Starts			
Number in Millions	1.62	1.55	1.52
Percent Change	–10.5	–4.3	–1.9
Unemployment Rate			
Percent	6.2	6.1	6.2
Consumer Price Index			
Percent Change	3.7	4.0	4.6
Three-Month Treasury Bill Rate			
Percent	5.8	5.9	6.4
Aaa Corporate Bond Rate			
Percent	9.4	9.7	9.9

TABLE 2
1988 AND 1989 ECCNOMIC FORECASTS: ARIZONA

	Estimated *1987*	**Forecast** *1988*	**Forecast** *1989*
Gross State Product			
Millions of 1982 Dollars	48,140	50,495	52,570
Percent Change	4.6	4.9	4.1
Personal Income			
Millions of Current Dollars	47,872	51,498	54,795
Percent Change	7.1	7.6	6.4
Retail Sales			
Millions of Current Dollars	18,001	18,942	19,895
Percent Change	4.7	5.2	5.0
Unemployment Rate			
Percent	6.3	6.5	7.0
Wage and Salary Employment			
Number in Thousands	1,383.7	1,430.2	1,467.0
Percent Change	3.4	3.4	2.6
Population			
Number in Thousands	3,405	3,489	3,574
Percent Change	3.1	2.5	2.4
Single-Family Units Permitted			
Number	27,360	23,675	20,760
Percent Change	–19.7	–13.5	–12.3
Multifamily Units Permitted[1]			
Number	12,038	8,820	6,850
Percent Change	–55.4	–26.7	–22.3

[1] **Apartment complexes of three or more units**

Source (Tables 1 and 2): Economic Outlook Center, College of Business, Arizona State University

Even the news on inflation was ambivalent. The U.S. CPI for January increased 0.3 percent for the month, comparable to the annual average inflation rate of 3.7 percent for 1987. However, the January increase was suppressed by a dive in gasoline and fuel prices, disguising advances in other consumption categories that may become more apparent later this year

THE U.S. OUTLOOK

The Economic Outlook Center's forecast for the U.S. economy is summarized in Table 1. The forecast assumes the current orthodox view that, while consumption spending and home building will slow during 1988, expanding exports, production, profits and business investment will keep the economy moving forward. Interest rates, generally falling since the October stock market crash, are expected to begin a gradual upward trend that should continue for the duration of the forecast period.

Real GNP growth is projected to average 2.2 percent in 1988 and 2.1 percent in 1989. After a period of relative softness in the first half of 1988, the U.S. economy is expected to rally as exports improve and business investment grows. By 1989, rising interest rates should combine with reduced consumption and home building to brake the economy's momentum.

While most consumer prices are anticipated to rise at an annual rate approaching 5 percent this year and next, the global glut of crude oil is exerting enough downward pressure on fuel prices to keep the projected rate of inflation at 4 percent in 1988 and 4.6 percent in 1989.

1988-1989 ARIZONA FORECAST

1987 was not a good year for the Arizona economy. Employment advanced just 3.4 percent statewide, the weakest performance since the state lost 1.1 percent of its jobs during the recession year 1982. Personal income grew at an annual rate of about 6 percent through the third quarter, down from the 9.3 percent increase registered in 1986. Retail sales climbed only 4.7 percent during the year, a surprisingly weak performance that barely exceeded the rate of inflation.

The Economic Outlook Center's forecasts for Arizona and Maricopa County, summarized in Tables 2 and 3, envision the next two years as a time of slow growth. Home building is expected to continue its decline. Other measures, such as employment, income and retail sales, also should fall short of the state's statistical record of the last five years.

EMPLOYMENT

With the most construction-intensive economy in the United States, Arizona is in the throes of a "correction," precipitated by overbuilding, that will last into the 1990s. Following a plunge of 9.5 percent in 1987, construction jobs are projected to shrink an additional 6.6 percent in 1988 and 2.8 percent in 1989 (see Table 4).

Manufacturing employment throughout much of the nation has expanded concurrently with industrial production as foreign demand for American goods has accelerated. Arizona manufacturing firms have not responded in similar fashion for a number of reasons. First, many industries responsible for the nation's rising industrial output produce commodities such as lumber, paper, fiberboard, chemicals, plastics, resins, pharmaceuticals and other goods that Arizona simply does not produce in significant quantities. Next, many of the state's industrial firms are defense contractors that 1) are not making products for export and 2) are not expanding due to the shrinking defense procurement budget. Finally, of those firms producing electronic equipment for private markets, many make components for mainframe computer systems that are not the focus of current industry expansion. Others have not maintained their existing market shares or exported production jobs to offshore facilities earlier in the business cycle when the dollar was much stronger. Still others have been involved in mergers, acquisitions and corporate restructuring that tend to limit growth in payrolls.

The EOC projects manufacturing employment in the state to grow 1.3 percent in 1988 and 0.1 percent in 1989, somewhat less than the 1.7 percent and 1.4 percent gains posted in 1986 and 1987, respectively.

Conversely, the service-providing sector should continue expanding with relative alacrity. Turmoil in financial services will cause banks and brokerage houses to grow more slowly than in recent years, but the wholesale and retail trade industries are expected to pick up the hiring pace a bit in 1988. In spite of brutal competition and a bleak outlook for sales growth in the near term, regional and national firms continue to invade the state, grabbing a share of one of the nation's most rapidly expanding markets. By 1989, job creation in the service sectors is expected to diminish as the rate of population growth declines.

TABLE 3
1988 AND 1989 ECONOMIC FORECASTS: MARICOPA COUNTY

	Estimated *1987*	**Forecast** *1988*	**Forecast** *1989*
Consumer Price Index			
Percent Change	4.1	4.6	5.1
Retail Sales			
Millions of Current Dollars	11,743	12,321	12,885
Percent Change	3.5	4.9	4.6
Unemployment Rate			
Percent	5.2	5.5	6.1
Wage and Salary Employment			
Number in Thousands	912.7	945.2	972.5
Percent Change	3.4	3.6	2.9
Population			
Number in Thousands	1,970	2,022	2,072
Percent Change	3.6	2.6	2.5
Single-Family Units Permitted			
Number	18,012	15,650	13,870
Percent Change	–24.5	–13.1	–11.4
Multifamily Units Permitted[1]			
Number	9,106	6,820	5,350
Percent Change	–50.3	–25.1	–21.6

[1] **Apartment complexes of three or more units**

TABLE 4
ARIZONA EMPLOYMENT FORECASTS
FOR 1988-1989 (thousands)

	1987	**Percent Change**	**1988**	**Percent Change**	**1989**	**Percent Change**
Manufacturing	187.2	1.4	189.6	1.3	189.8	0.1
Mining	11.4	3.6	11.7	2.6	11.5	–1.7
Construction	102.4	–9.5	95.6	–6.6	92.9	–2.8
TCPU*	72.0	9.3	75.6	5.0	78.1	3.3
Trade	339.5	4.3	356.1	4.9	368.2	3.4
FIRE**	94.4	6.2	96.7	2.4	99.6	3.0
Services	343.9	6.2	356.4	6.3	381.4	4.4
Government	232.9	3.5	239.5	2.8	245.5	2.5
Total Wage and Salary Employment	1,383.7	3.4	1,430.2	3.4	1,467.0	2.6
Total Employment	1,513.0	3.4	1,563.0	3.3	1,605.0	2.7
Total Unemployment	101.0	–7.3	109.0	7.9	120.0	10.1
Labor Force	1,614.0	2.7	1,672.0	3.6	1,725.0	3.2
Unemployment Rate	6.3		6.5		7.0	

*Transportation, Communications and Public Utilities

**Finance, Insurance and Real Estate

Source (Tables 3 and 4): Economic Outlook Center, College of Business, Arizona State University

POPULATION

Demographic factors favor slower migration to Arizona, since the segment of the population most likely to move – the 25-to-34 age group – will represent a smaller share of the nation's population. Fewer job opportunities also are an important factor reducing migration flows. Figure I illustrates the relationship between job creation and population growth during the last two decades.

CONSTRUCTION

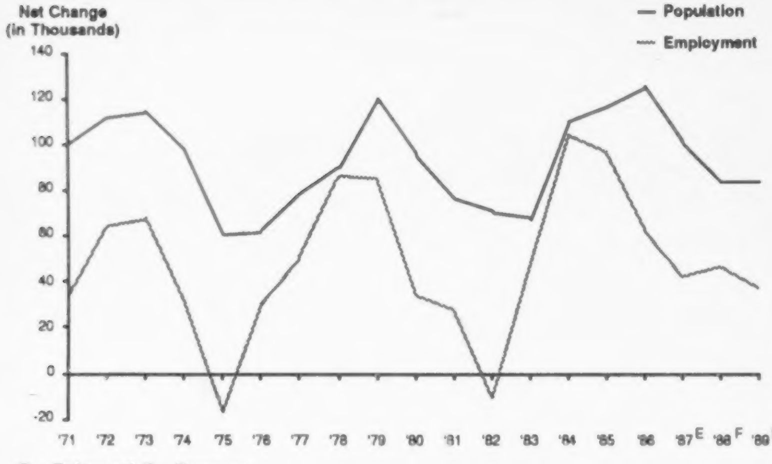
The EOC projects the current slump in home construction (and office construction as well) will extend to 1990, perhaps beyond. The aforementioned rise in interest rates, slower migration and high vacancy rates all will have an impact on the continued decline.

After a fall of nearly 34 percent in new housing units authorized last year, an additional decline of more than 17 percent is expected this year, followed by another drop of 15 percent in 1989. High vacancy rates will inhibit apartment construction, while slower employment growth and migration will hold back the single-family segment.

RETAIL SALES

Were it not for the unusual strength of restaurant and bar sales (see Figure II), Arizona's current state budget crisis would be even worse than it is. Dual-income families and the baby-boom "echo" have contributed to both the rising household incomes and the shrinking time for meal preparation that underlie this trend in Arizona and the United States. In Arizona, a vibrant tourism sector also makes a major contribution to this category.

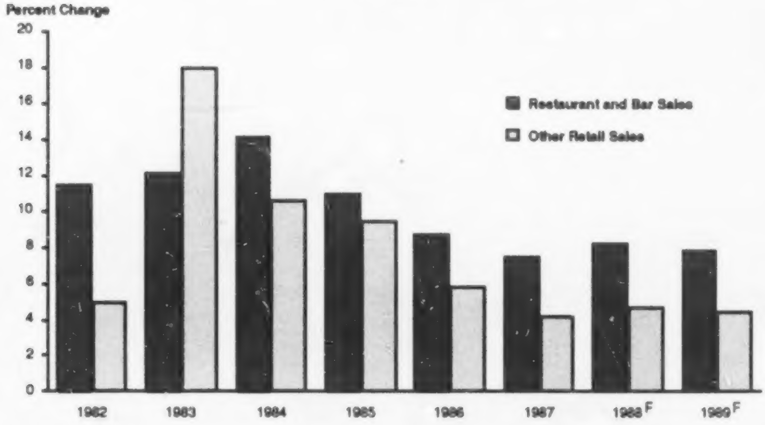
FIGURE I
ARIZONA EMPLOYMENT GROWTH AND POPULATION FLOWS
1971-1989, Annual Change (in Thousands)



E = Estimated; F = Forecast

Source: Arizona Department of Economic Security; Center for Business Research and Economic Outlook Center, College of Business, Arizona State University

FIGURE II
ARIZONA RESTAURANT AND BAR SALES
1982-1989



F = Forecast

Source: Economic Outlook Center, College of Business, Arizona State University

Sales in other retail categories have not kept pace. The graph shows how pent-up demand for consumer durables fueled an enormous sales increase early in the recovery from the last recession. Later, demand was slaked, consumer debt mounted, and inflation waned, pushing nominal sales totals down sharply and leaving the state in its present predicament. Of course, other factors have contributed to the budget gap, but last year's sales increase of less than 5 percent wasn't even half the double-digit increases Arizona took for granted a few years ago.

The outlook suggests more of the same: sluggish growth matching or slightly exceeding the expected rate of inflation. If a plunge in consumer spending were to set off a recession, even the modest gains assumed by the forecast would be difficult to achieve.

SUMMARY

Overall, the Arizona forecast is not a bad one. While the EOC does not predict a return to the splendid economic performance of the mid-1980s, it also does not expect a regional recession to strangle its growth prospects. In fact, Arizona should fare very well compared to most Western states, with California and Nevada the possible exceptions. A national recession doubtless would have a negative impact on Arizona, but construction – the most cycle-sensitive industry – already is in the doldrums, leaving the state relatively well-positioned to endure even a major business slump.

Current events make the task of carefully assessing the short-term outlook no less formidable than the intelligent analysis of Arizona's prospects many years from now. Future EOC forecasts may attempt to grapple with the critical, long-term issues. For now, however, the two-year outlook is for relatively slow growth – though still above average.

– Brian Cary
Senior Research Economist
Economic Outlook Center

'88 Real Estate Industry Survey

Metro Phoenix Activity Expected To Continue Gradual Descent

Economic conditions in 1988 should be comparable to those in 1987, but metro Phoenix real estate activity should be down somewhat from 1987 levels. This outlook represents the consensus of four real estate groups in Maricopa County: homebuilders, financial services (banks, savings and loan associations, and mortgage bankers), real estate brokerages (commercial and residential), and "other" entities (appraisal, development, title insurance and property management firms, and government). They were surveyed during December 1987 and January 1988 by *Phoenix Metro* Magazine and the Arizona Real Estate Center.

The majority of respondents expect the various economic conditions to remain the same in 1988 as in 1987 (Table 1). Unlike the 1987 respondents, they tend to be more split on whether current conditions are better or worse, especially consumer confidence, the Phoenix-area economy, Phoenix employment, and business confidence. For the remaining conditions (retail sales, the national economy, and national employment), those surveyed tend to expect a worsening during 1988.

The consensus outlook is for stability – the expected levels do not differ greatly from current levels (Table 2). The relative closeness of the mode (most common value) to the median (value of the middle item in an ordered range) reflects a fairly consistent, narrow range of responses. The greatest variance is in predictions of the apartment vacancy rate, with forecasts ranging from 5-to-35 percent.

As with the economic expectations, the expressed level of confidence tends to be lower than a year ago. In fact, respondents have much less confidence than in previous surveys, with a higher level of responses in the "not confident" category. They expressed the following levels of confidence that certain key economic areas would improve: 51 percent for the local economy, 44 percent for the new-home market, 63 percent for their firm's activity, and 50 percent for the real estate market. Confidence that the economic policy of the federal government will lead to an improving economy continued to decline, from 36 percent in 1987 to only 34 percent in 1988. Further, only 32 percent of the respondents are confident that inflation will be lower in 1988.

The fundamental concern is that only 46 percent of respondents express confidence that mortgage interest rates will be lower in 1988. With reference to the new-home market, the most common response (38 percent) was that single-family permits would be in the range of 15,000-to-19,999 units, the expectation of the 1987 survey as well.

Respondents expect prices to remain unchanged during 1988. Table 2 presents the expected price changes in selected sectors of the market. The dominant pattern is one of no change (0.0 percent) or a slight increase over 1987. The main problem is that most respondents do not anticipate improvement in their firm's activity during 1988.

Respondents to the 1988 survey, not as optimistic as those who completed the 1987 survey, foresee a year of less activity. Given last year's relatively high level of market activity and the current economic uncertainty, expectations of somewhat lower levels of activity are, in fact, a call for another year of fairly good real estate activity.

– Jay Q. Butler

Dr. Butler is Associate Professor of Real Estate and Director of the Arizona Real Estate Center in the ASU College of Business.

TABLE 1
ECONOMIC OUTLOOK SCORES*

Economic Variable	1987	1988
Consumer confidence	44	48
Phoenix area economy	51	50
Retail sales	47	43
National economy	32	35
Phoenix employment	45	44
National employment	32	33
Business confidence	43	46

* Metropolitan Phoenix real estate industry representatives had three reply options to each survey question: Higher, Same or Lower. The score for each question was calculated by averaging the weighted replies. The weights: Higher - 100; Same - 50; Lower - 0. Scores may range from 0 to 100, with higher scores reflecting a greater degree of optimism. Scores near 50 indicate an expectation of no change; scores above 50 indicate expected improvement, and scores below 50 indicate expected worsening.

Source: Survey conducted by the Arizona Real Estate Center in the College of Business, Arizona State University; in cosponsorship with *Phoenix Metro* magazine, December 1987 and January 1988

TABLE 2
1987 AND 1988 CONSENSUS OUTLOOKS COMPARED TO ACTUAL 1987
Metropolitan Phoenix

	Percentage Rate		
Variable	*1987 Projection*	*Actual Year-end,1987*	*1988 Projection*
Conventional mortgage rate	9.5	10.6	10.4
FHA mortgage rate	9.0	10.5	10.0
Prime interest rate	7.5	8.75	8.25
Commercial interest rate	10.0	N/A	11.0
Six-month Treasury Bill rate	6.0	6.4	7.0
Inflation rate (Metropolitan Phoenix)	3.0	4.1	4.0
Apartment vacancy rate	12.0	13.0	14.0
Unemployment rate (Metro Phoenix)	6.0	4.8	6.0
	Percent Change		
	1987 Projection	*Actual 1987*	*1988 Projection*
Resale-home prices	0.0	4.5	2.0
New-home prices	3.0	7.2	2.0
Land prices	5.0	N/A	0.0
Level of firm's activity	7.0	N/A	0.0
Resale-home market activity	0.0	0.0	0.0
Monthly rent for apartments	3.0	– 0.9	0.0

N/A = Not Available

Source: Center for Business Research and Arizona Real Estate Center, College of Business, Arizona State University

'87 Construction Activity Down Slightly, Still Strong

Given the great economic uncertainty of 1987, the Arizona construction industry, based on most measures of activity, had a good year. Total construction activity declined only 6 percent ($5.4 to $5.1 billion), while permit activity posted a 12-percent decrease (104,625 in 1986 to 92,242 permits). Evident in the different rates of decline is the activity's driving force: the development of several major projects in Maricopa County.

Total construction activity in Maricopa County declined only 2 percent ($3.9 to $3.8 billion), while its share of the state's total activity grew from 72 percent to 75 percent. With a 27-percent decrease ($817 to $596 million), the share of activity located within Pima County declined from 15 percent to 12 percent. While the remaining 13 counties accounted for only 13 percent of total Arizona construction, activity improved in several counties, including Mohave, Navajo, and Santa Cruz. The 12 leading areas of development activity for 1987, shown in Table 1, accounted for $4.4 billion or 87 percent of total statewide activity.

TABLE 1
REPORTING UNITS WITH GREATEST TOTAL VALUE OF BUILDING PERMITS
1987

Reporting Unit	Value *(in millions)*
Phoenix	$1,329
Scottsdale	841
Mesa	[illegible]
Unincorporated Maricopa County	289
Unincorporated Pima County	269
Tucson	283
Chandler	223
Tempe	214
Glendale	170
Peoria	146
Gilbert	132
Unincorporated Yavapai County	73

Source: Center for Business Research, College of Business, Arizona State University

SECTORAL ACTIVITY

Residential

Maricopa County. Although 1987 began with very low interest rates (9.3 percent for 30-year conventional mortgages), they moved upward in March and were over 11 percent by October. After the stock market crash, interest rates declined, ending the year at 10.6 percent. Even though mortgage interest rates were changing throughout the year, the average interest rate for 1987 was the same as for 1986 (10.1 percent). This fact, combined with rising income and fairly stable home prices, allowed affordability to remain comparable to the 1986 level.

Single-family construction activity, however, decreased 24 percent (23,851 to 18,012 permits). The only cities to record increases over last year were Avondale (146 to 201 permits), Gilbert (912 to 1,069 permits), and Scottsdale (1,882 to 1,893 permits). While the number of permitted homes declined significantly, the dollar value of permits remained stable at $1.7 billion (see Table 3). This pattern demonstrated that the new home market was dominated by the move-up market (median value increased from $89,200 to $95,700). Further, new home construction activity was affected by a good resale market and continued growth in remodeling activity.

Rest of Arizona. The single-family sector in Pima County declined 9 percent (4,526 to 4,130 permits), with 72 percent of the permits issued in the unincorporated areas. Dollar value of new residential development also decreased 9 percent ($302 to $275 million).

Following the same pattern as in the metropolitan counties, single-family activity throughout the rest of Arizona decreased 9 percent (5,702 to 5,218 permits). Reporting areas that did register improvement over last year included unincorporated Santa Cruz (118 to 236 permits), Casa Grande (79 to 145 permits), and Lake Havasu City (436 to 565 permits).

Commercial

Maricopa County. While the multifamily and retail sectors declined appreciably from the levels of 1986, the development of several major office-building projects allowed the

TABLE 2
KEY SECTOR CONSTRUCTION ACTIVITY
1986 and 1987

	SINGLE FAMILY		COMMERCIAL						INDUSTRIAL	
			APARTMENTS[a]		OFFICE BUILDINGS[b]		RETAIL STORES[c]			
	Number of Permits	*Dollar Value (000)*	*Number of Units*	*Dollar Value (000)*	*Number of Permits*	*Dollar Value (000)*	*Number of Permits*	*Dollar Value (000)*	*Number of Permits*	*Dollar Value (000)*
Maricopa County										
1987	18,012	1,667,829	8,879	389,198	336	407,206	735	248,869	205	127,345
1986	23,851	1,706,112	17,519	491,175	294	249,817	1,214	335,461	339	145,686
Pima County										
1987	4,130	275,487	1,556	38,119	56	30,767	92	45,007	29	4,769
1986	4,526	302,790	6,295	159,300	104	59,594	121	46,609	29	5,900
Rest of Arizona										
1987	5,218	327,251	1,103	28,726	98	11,140	230	36,271	67	10,399
1986	5,702	314,564	1,835	39,587	155	17,894	273	41,704	109	13,601
Arizona Total										
1987	27,360	2,270,567	11,538	456,043	490	449,113	1,057	330,147	301	142,513
1986	34,079	2,323,465	25,649	690,062	553	327,305	1,608	423,774	477	165,188

[a] Five or more housing units

[b] Office, bank, medical and professional buildings

[c] Shopping centers and other mercantile buildings

Source: Center for Business Research, College of Business, Arizona State University

commercial sector to remain fairly stable ($1.3 billion in permits). The multifamily sector recorded a 49-percent drop (17,519 to 8,879 permits). Only Scottsdale reported an increase (1,370 to 2,473 units), while most cities registered significant decreases (see Table 4), exemplified by Glendale (3,271 to 393 units) and Mesa (3,659 to 1,436 units). However, the metropolitan vacancy rate continued to climb, from 11 to 13 percent.

Although much concern has been voiced about problems in the office-building sector, a record $407 million (336 permits) in new projects were authorized. This level of activity surpassed the previous record established in 1985 ($385 million, 454 permits). The primary areas of activity were Phoenix (125 permits, $313 million) and Scottsdale (21 permits, $35 million). Many of the permitted projects will not open until next year, when the market is expected to improve.

In response to growing concern about the retail sector, especially for the small centers, development activity declined from $335 million (1,214 permits) to $249 million (735 permits). In contrast to the addition of more than 5,000 hotel/motel rooms in 1986, only 2,900 rooms ($88 million) were permitted during 1987.

Rest of Arizona. Led by decreases in all major sectors, commercial development in Pima County fell 58 percent ($313 to $131 million). The greatest decline was evident in the multifamily sector, with only 1,556 units authorized ($38 million), in contrast to 6,295 units ($159 million) in 1986. Only the retail sector was near last year's level of activity (see Table 2).

Multifamily activity continued to decline (1,835 to 1,103 units) in the non-metropolitan counties, with nearly 50 percent of the units permitted in Coconino County. Activity in the office-building sector also diminished, while the retail sector recorded a slight increase over 1986.

Industrial

Maricopa County. Industrial development continued its downward slide, with only $127 million in new projects. Much of the decline occurred in Tempe ($44 to $13 million), while other cities recorded increases (Chandler: $18 to $26 million; Goodyear: $15,000 to $8 million).

Rest of Arizona. A similar pattern was evident throughout the state, with Pima County posting a 19 percent decrease in industrial activity. Mohave County recorded $4 million in new projects, followed by Coconino County with $1.6 million.

Other

This category includes a wide range of permitted activity, from churches to schools to swimming pools. For the last few years, the dominant sector has been educational facilities. With $168 million in new projects, this sector's activity surpassed industrial development in dollar value for 1987.

In Maricopa County, dollar value increased 7 percent, while permit activity declined 10 percent. Primary areas of development were educational facilities, religious buildings, and health care facilities. Led by continued authorization of new educational projects, this sector remained fairly stable in Pima County. The non-metropolitan counties followed a similar pattern, with areas of strong educational construction activity including Flagstaff, Payson, Casa Grande, and Prescott.

LOOKING AHEAD

Last year began with fairly optimistic expectations, based on declining interest rates and continuing economic growth. As the year progressed, however, the market environment worsened. Interest rates started upward, and concern about the economy mounted. Finally, interest rates began to decline, but the year ended with great concern.

In the first few months of 1988, interest rates have continued to decline, and economic conditions have remained fairly good. Basically, neither market forces nor economic conditions are strong enough to stimulate development activity beyond the levels of 1987.

Two fundamental factors should contribute to limiting construction activity during 1988. First, the strong migration pattern that has fueled growth over the last few years greatly diminished in the second half of 1987. The impact of the reduction in new arrivals should be most evident in the retail and multifamily sectors. Second, the level of activity in 1987 was largely supported by the construction of major projects, especially in Maricopa County. The new projects announced for 1988 are not expected to support 1987's level of activity.

These two factors, coupled with an uncertain economy, make it difficult to project construction activity. The key sector in 1988 should be single-family homes, which is expected to be below the levels of 1987 by 5-to-6 percent. Multifamily sector activity also should be down from 1987 levels but could be stronger in the non-metropolitan areas. Frequently, construction activity improves in the non-metropolitan areas in relation to the metropolitan areas because the former are overlooked for development until the latter are saturated. Then, developers recognize the stability, size and potential of the outlying areas. This pattern, especially evident in the retail sector, probably will become more prevalent in the multifamily sector as well.

There are no expectations for the market to expand during 1988 – many concerns remain about the economy and market conditions. Nor is there any reason for construction activity to decline appreciably. This outlook is based on the general assumption that the economy will still grow, but at a slower rate, and will not enter into recession. If this scenario holds, the construction industry should begin to improve during 1989. However, if the economy should decline further than currently expected, the market will follow suit, with the recovery postponed to a later date.

While the short-term outlook for the Arizona construction industry incorporates considerable concern and uncertainty, the long-term outlook is one of great potential. In working to achieve this potential, the economic base must continue to generate the new jobs and income that will attract new population as well as provide employment growth for current residents. This continued economic development is especially important to the non-metropolitan counties if a more balanced state economy is to be established. If the economy continues to develop, the state construction market will again be one of the most dynamic in the country during the 1990s.

– Jay Q. Butler

Dr. Butler is Associate Professor of Real Estate and Director of the Arizona Real Estate Center in the ASU College of Business.

TABLE 3
ARIZONA BUILDING PERMITS: ANNUAL REPORT
January – December 1987

	Residential*		Commercial		Industrial		Other		Total	
	Number of Permits	Dollar Value (000)	Number of Permits	Dollar Value (000)	Number of Permits	Dollar Value (000)	Number of Permits	Dollar Value (000)	Number of Permits	Dollar Value (000)
APACHE COUNTY										
Eagar**	76	1,988	7	111	1	79	7	226	91	2,404
St. Johns	26	N/C	0	0	0	0	0	0	26	N/C
Springerville	17	589	7	719	0	0	4	11	28	1,319
Unincorporated	109	4,198	1	7	0	0	7	121	117	4,326
Total, Apache County	228	6,775	15	837	1	79	18	358	262	8,049
Percent Change, Previous Year	19	26	15	94	—	—	–45	–87	10	–5
COCHISE COUNTY										
Benson	43	336	3	80	0	0	14	68	60	484
Bisbee	52	416	7	271	0	0	16	64	75	751
Douglas	147	2,147	17	357	0	0	105	362	269	2,866
Huachuca City**	44	287	5	62	2	410	1	1	52	760
Sierra Vista	409	7,289	13	3,052	0	0	493	1,526	915	11,867
Tombstone**	35	236	1	27	0	0	48	22	84	285
Unincorporated	631	20,968	24	939	1	20	101	880	757	22,807
Willcox	57	195	14	363	0	0	43	382	114	940
Total, Cochise County	1,418	31,874	84	5,151	3	430	821	3,305	2,326	40,760
Percent Change, Previous Year	–5	–15	–12	–70	–80	–62	15	–67	0	–38
COCONINO COUNTY										
Flagstaff	503	27,288	122	22,158	5	1,496	262	8,638	892	59,580
Fredonia**	18	43	1	9	1	25	2	26	22	103
Page**	105	3,265	12	847	0	0	47	1,487	164	5,599
Unincorporated	1,061	28,892	70	1,810	2	126	222	4,004	1,355	34,832
Williams	25	1,033	4	621	0	0	55	128	84	1,782
Total, Coconino County	1,712	60,521	209	25,445	8	1,647	588	14,283	2,517	101,896
Percent Change, Previous Year	–7	8	140	33	–60	–70	11	–52	2	–8
GILA COUNTY										
Globe	22	399	14	298	0	0	45	205	81	902
Hayden	4	8	0	0	0	0	3	0	7	6
Miami**	5	193	0	0	0	0	3	4	8	197
Payson	425	10,146	40	3,112	0	0	73	3,977	538	17,235
Unincorporated	427	10,788	22	905	3	81	62	505	514	12,279
Total, Gila County	883	21,534	78	4,315	3	81	188	4,691	1,148	30,621
Percent Change, Previous Year	–12	0	90	52	–50	–13	17	37	–5	10
GRAHAM COUNTY										
Pima**	34	453	0	0	0	0	11	7	45	460
Safford	115	1,444	27	3,545	0	0	34	154	176	5,143
Thatcher	66	1,215	3	1,878	0	0	14	42	83	3,135
Unincorporated	243	3,832	14	698	3	68	19	594	279	5,192
Total, Graham County	458	6,944	44	6,121	3	68	78	797	583	13,930
Percent Change, Previous Year	21	11	52	733	200	2,167	–1	–78	19	31
GREENLEE COUNTY										
Clifton**	1	N/C	0	0	0	0	0	0	1	N/C
Duncan**	0	0	0	0	0	0	0	0	0	0
Unincorporated**	0	0	0	0	0	0	0	0	0	0
Total, Greenlee County	1	0	0	0	0	0	0	0	1	0
Percent Change, Previous Year	–93	—	—	—	—	—	—	—	–95	–
LA PAZ COUNTY										
Parker	68	306	4	536	1	474	26	134	99	1,450
Unincorporated**	285	2,848	26	1,818	2	218	76	178	389	5,058
Total, La Paz County	353	3,154	30	2,352	3	690	102	312	488	6,508
Percent Change, Previous Year	147	40	400	812	—	—	12	–13	103	127
MARICOPA COUNTY										
Avondale	324	12,849	26	1,339	1	50	209	1,091	560	15,329
Buckeye	37	75	3	177	0	0	7	71	47	323
Chandler	1,657	74,125	120	49,549	17	25,731	2,480	79,305	4,274	228,710
El Mirage	56	1,056	4	450	0	0	21	466	81	1,972
Gila Bend	13	35	5	14	0	0	12	27	30	76
Gilbert	1,216	95,089	24	10,587	11	6,880	771	19,061	2,022	131,617
Glendale	2,014	94,837	229	34,177	12	4,369	890	36,264	3,145	169,647
Goodyear**	26	595	2	37	3	8,103	67	701	98	9,436
Guadalupe**	7	71	0	0	0	0	0	0	7	71
Mesa	3,028	202,064	149	123,135	16	14,155	3,787	103,770	6,980	443,124
Paradise Valley	267	18,513	3	2,755	0	0	253	3,145	523	24,413
Peoria	1,904	107,715	168	12,353	4	508	645	25,748	2,721	146,324
Phoenix	7,578	433,896	689	816,568	112	51,169	7,399	227,249	15,778	1,328,882
Scottsdale	2,242	415,459	367	298,183	0	0	1,876	127,798	4,485	841,428
Surprise	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R
Tempe	1,038	68,852	564	97,076	24	13,211	981	34,471	2,607	213,610
Tolleson**	15	92	5	1,687	0	0	14	142	34	1,921
Unincorporated	7,004	227,343	336	31,343	3	2,905	5,111	27,610	12,454	289,201
Wickenburg	30	1,159	6	398	2	264	12	89	50	1,910
Youngtown**	30	330	1	4	0	0	6	98	37	432
Total, Maricopa County	28,486	1,754,155	2,701	1,279,832	205	127,345	24,541	687,094	55,933	3,848,426
Percent Change, Previous Year	–14	–2	–21	–4	–40	–13	–10	7	–13	–2

Arizona Building Permits: Annual Report (continued)

	Residential*		Commercial		Industrial		Other		Total	
APACHE COUNTY	*Number of Permits*	*Dollar Value (000)*	*Number of Permits*	*Dollar Value (000)*	*Number of Permits*	*Dollar Value (000)*	*Number of Permits*	*Dollar Value (000)*	*Number of Permits*	*Dollar Value (000)*
Kingman City	300	6,032	54	5,358	0	0	58	1,627	412	13,017
Kingman Area	477	7,662	15	553	4	1,468	249	833	745	10,516
Lake Havasu City	735	41,481	26	4,408	9	1,476	226	2,287	996	49,652
Lake Havasu Area	79	1,177	2	153	0	0	64	168	145	1,498
Bullhead City	684	14,952	12	4,320	1	24	104	5,742	801	25,038
Mohave Valley South	579	11,858	20	1,612	0	0	363	1,309	962	14,779
Dolan Springs	193	2,981	1	6	0	0	93	246	287	3,233
Sacramento Valley	283	4,227	13	550	1	9	116	334	413	5,120
Mohave General	394	2,846	2	121	1	1,078	55	152	452	4,197
Total, Mohave County	3,724	93,216	145	17,061	16	4,055	1,328	12,698	5,213	127,050
Percent Change, Previous Year	–5	28	22	–31	14	132	–10	43	–5	17
NAVAJO COUNTY										
Holbrook	54	918	6	210	0	0	6	34	66	1,162
Pinetop–Lakeside	116	3,387	7	422	0	0	11	321	134	4,130
Show Low	96	2,528	14	1,224	1	18	72	263	183	4,033
Snowflake**	15	456	1	N/C	0	0	0	0	16	456
Taylor**	10	312	2	175	0	0	0	0	12	487
Unincorporated	475	16,573	6	1,066	0	0	5	126	486	17,765
Winslow**	40	503	3	29	0	3	22	70	65	602
Total, Navajo County	806	24,677	39	3,126	1	18	118	814	962	28,635
Percent Change, Previous Year	–5	16	–5	9	–86	–97	–88	–65	–22	6
PIMA COUNTY										
Marana	78	441	3	191	1	48	21	307	103	987
Oro Valley	213	15,798	9	1,365	0	0	155	3,798	377	20,961
South Tucson	34	220	18	2,602	2	148	21	197	75	3,167
Tucson	2,403	73,466	256	98,200	8	572	3,900	110,312	6,567	282,550
Unincorporated	4,371	206,854	66	29,025	18	4,001	2,344	48,906	6,799	288,786
Total, Pima County	7,099	296,779	352	131,383	29	4,769	6,441	163,520	13,921	596,451
Percent Change, Previous Year	–24	–9	–28	–58	0	–19	–1	–6	–15	–27
PINAL COUNTY										
Apache Junction	541	13,937	58	3,317	0	0	463	1,548	1,062	18,802
Casa Grande	206	10,169	59	12,196	0	0	54	4,232	319	26,597
Coolidge**	56	450	8	560	1	300	21	77	86	1,387
Eloy	64	822	9	633	4	462	33	676	110	2,593
Florence**	119	884	6	601	0	0	39	3,420	164	4,905
Kearny	26	30	1	63	0	0	10	20	37	113
Mammoth**	4	35	1	N/C	0	0	1	N/C	6	35
Superior**	6	4	1	1	0	0	2	N/C	9	5
Unincorporated**	169	6,630	11	738	2	487	44	2,096	226	9,951
Total, Pinal County	1,191	32,961	154	18,109	7	1,249	667	12,069	2,019	64,388
Percent Change, Previous Year	–29	–18	83	17	–53	–5	–45	14	–36	–5
SANTA CRUZ COUNTY										
Nogales	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R
Patagonia**	8	125	1	15	0	0	3	2	12	142
Unincorporated	629	13,587	15	992	2	220	38	465	684	15,264
Total, Santa Cruz County	637	13,712	16	1,007	2	220	41	467	696	15,406
Percent Change, Previous Year	205	95	167	111	100	54	37	–12	183	88
YAVAPAI COUNTY										
Chinc Valley**	9	N/C	1	N/C	0	0	3	N/C	13	N/C
Clarkdale**	78	3,207	2	225	0	0	30	440	110	3,872
Cottonwood	114	2,498	11	1,567	5	348	86	820	216	5,233
Jerome**	1	N/C	0	0	0	0	0	0	1	N/C
Prescott	555	23,937	53	9,166	1	307	446	17,527	1,055	50,937
Prescott Valley	589	12,821	47	6,165	0	0	14	331	650	19,317
Unincorporated	1,572	58,456	42	3,453	3	193	421	11,158	2,038	73,260
Total, Yavapai County	2,918	100,919	156	20,578	9	848	1,000	30,276	4,083	152,619
Percent Change, Previous Year	–8	–14	–26	–13	–40	–37	–13	93	–11	–4
YUMA COUNTY										
Somerton**	22	617	0	0	0	0	16	19	38	636
Unincorporated**	849	22,218	70	5,452	10	1,005	458	17,254	1,387	45,929
Wellton**	1	1	0	0	0	0	0	0	1	1
Yuma	329	10,584	37	10,301	1	9	297	4,858	664	25,752
Total, Yuma County	1,201	33,420	107	15,753	11	1,014	771	22,131	2,090	72,318
Percent Change, Previous Year	–11	–15	1	–36	–21	–43	3	37	–6	–11
TOTAL, ARIZONA	51,115	2,480,641	4,128	1,531,088	301	142,513	36,698	952,815	92,242	5,107,057
Percent Change, Previous Year	–13	–2	–13	–14	–37	–14	–9	3	–12	–6

*Includes mobile homes

**Incomplete data: One or more months not available

N/R: No Report

N/C: This community does not collect dollar valuations.

Note: A dash indicates that a percent change could not be calculated because at least one period had no activity.

Source: Center for Business Research, College of Business, Arizona State University

TABLE 4
ARIZONA HOUSING UNITS AUTHORIZED: ANNUAL REPORT
January - December 1987

	One Family	*Mobile Homes*	*Duplex*	*3-4 Family*	*5 or More*	*Total*
APACHE COUNTY						
Eagar**	20	33	0	0	0	53
St. Johns	6	20	0	0	0	26
Springerville	6	3	0	0	0	9
Unincorporated	48	36	0	0	0	84
Total, Apache County	80	92	0	0	0	172
Percent Change, Previous Year	−11	64	—	—	—	18
COCHISE COUNTY						
Benson	5	20	0	0	0	25
Bisbee	1	1	2	0	5	9
Douglas	22	0	0	4	0	26
Huachuca City**	2	0	0	0	0	2
Sierra Vista	124	58	0	4	0	186
Tombstone**	1	8	0	0	0	9
Unincorporated	329	149	0	0	0	478
Willcox	1	22	0	0	0	23
Total, Cochise County	485	258	2	8	5	758
Percent Change, Previous Year	1	−30	−83	−81	−99	−44
COCONINO COUNTY						
Flagstaff	286	65	26	0	542	919
Fredonia**	1	14	0	0	0	15
Page**	23	31	0	4	0	58
Unincorporated	326	222	0	0	0	548
Williams	7	10	0	0	0	17
Total, Coconino County	643	342	26	4	542	1,557
Percent Change, Previous Year	−11	−17	−32	−43	293	18
GILA COUNTY						
Globe	5	0	0	0	0	5
Hayden	0	0	0	0	0	0
Miami**	3	0	0	0	0	3
Payson	107	81	0	0	6	194
Unincorporated	147	130	0	0	0	277
Total, Gila County	262	211	0	0	6	479
Percent Change, Previous Year	−12	−15	—	—	−79	−18
GRAHAM COUNTY						
Pima**	3	11	0	0	0	14
Safford	17	11	0	3	31	62
Thatcher	10	21	0	0	0	31
Unincorporated	23	148	0	0	0	171
Total, Graham County	53	191	0	3	31	278
Percent Change, Previous Year	6	9	—	0	—	22
GREENLEE COUNTY						
Clifton**	0	0	0	0	0	0
Duncan**	0	0	0	0	0	0
Unincorporated**	0	0	0	0	0	0
Total, Greenlee County	0	0	0	0	0	0
Percent Change, Previous Year	—	—	—	—	—	-
LA PAZ COUNTY						
Parker	3	4	0	0	0	7
Unincorporated**	11	126	0	0	0	137
Total, La Paz County	14	130	0	0	0	144
Percent Change, Previous Year	−66	282	—	—	—	82
MARICOPA COUNTY						
Avondale	201	75	0	3	0	279
Buckeye	1	31	0	0	0	32
Chandler	1,099	0	0	0	393	1,492
El Mirage	5	23	0	0	0	28
Gila Bend	1	0	0	0	0	1
Gilbert	1,069	1	58	0	30	1,158
Glendale	1,253	282	2	0	212	1,749
Goodyear**	8	11	0	0	0	19
Guadalupe**	2	0	2	0	0	4
Mesa	2,394	0	6	64	1,436	3,900
Paradise Valley	66	0	0	0	0	66
Peoria	1,502	10	6	0	12	1,530
Phoenix	4,496	13	2	58	3,299	7,868
Scottsdale	1,893	0	2	73	2,473	4,441
Surprise	N/R	N/R	N/R	N/R	N/R	N/R
Tempe	567	0	0	4	988	1,559
Tolleson**	0	0	0	0	0	0
Unincorporated	3,432	1,084	0	21	36	4,573
Wickenburg	17	1	2	4	0	24
Youngtown**	6	0	0	0	0	6
Total, Maricopa County	18,012	1,531	80	227	8,879	28,729
Percent Change, Previous Year	−24	−5	−77	−71	−49	−35
MOHAVE COUNTY						
Kingman City	141	88	0	0	158	387
Kingman Area	60	256	0	3	5	324
Lake Havasu City	565	0	8	8	46	627
Lake Havasu Area	8	46	0	0	0	54
Bullhead City	203	0	4	0	0	207
Mohave Valley South	97	271	0	0	0	368
Dolan Springs	31	81	0	0	0	112
Sacramento Valley	36	150	0	0	0	186
Mohave General	38	333	2	0	0	373
Total, Mohave County	1,179	1,225	14	11	209	2,638
Percent Change, Previous Year	27	6	40	−8	−33	9
NAVAJO COUNTY						
Holbrook	3	31	0	0	0	34
Pinetop–Lakeside	40	4	0	0	8	52
Show Low	15	45	0	0	0	60
Snowflake**	4	8	0	0	0	12
Taylor**	6	0	0	4	0	10
Unincorporated	259	54	0	0	0	313
Winslow**	5	7	0	0	0	12
Total, Navajo County	332	149	0	4	8	493
Percent Change, Previous Year	−11	43	—	—	−75	−4
PIMA COUNTY						
Marana	6	59	0	0	0	65
Oro Valley	197	0	0	0	0	197
South Tucson	5	0	0	0	0	5
Tucson	958	0	78	48	1,060	2,144
Unincorporated	2,964	268	0	0	496	3,728
Total, Pima County	4,130	327	78	48	1,556	6,139
Percent Change, Previous Year	−9	−79	−20	4	−76	−62
PINAL COUNTY						
Apache Junction	72	371	0	12	48	503
Casa Grande	145	0	0	0	0	145
Coolidge**	3	20	0	0	0	23
Eloy	5	26	0	3	0	34
Florence**	1	27	0	8	18	54
Kearny	1	6	0	0	0	7
Mammoth**	1	0	0	0	0	1
Superior**	0	0	0	0	0	0
Unincorporated**	112	0	0	4	0	116
Total, Pinal County	340	450	0	27	66	883
Percent Change, Previous Year	−36	−52	—	−25	5	−45
SANTA CRUZ COUNTY						
Nogales	N/R	N/R	N/R	N/R	N/R	N/R
Patagonia**	1	6	0	0	0	7
Unincorporated	236	376	4	15	6	637
Total, Santa Cruz County	237	382	4	15	6	644
Percent Change, Previous Year	101	649	−75	275	—	241
YAVAPAI COUNTY						
Chino Valley**	2	4	0	0	0	6
Clarkdale**	25	32	0	3	0	60
Cottonwood	32	15	4	3	31	85
Jerome**	0	0	0	0	0	0
Prescott	286	47	2	101	112	548
Prescott Valley	179	163	20	19	13	394
Unincorporated	740	373	6	15	26	1,160
Total, Yavapai County	1,264	634	32	141	182	2,253
Percent Change, Previous Year	−24	3	−41	19	−46	−19
YUMA COUNTY						
Somerton**	13	1	0	0	0	14
Unincorporated**	174	422	0	0	48	644
Wellton**	0	0	0	0	0	0
Yuma	142	22	0	12	0	176
Total, Yuma County	329	445	0	12	48	834
Percent Change, Previous Year	−16	−6	—	−8	−91	−42
TOTAL, ARIZONA	27,360	6,367	236	500	11,538	46,001
Percent Change, Previous Year	[illegible]	−19	−42	−54	−56	−34

**Incomplete data: One or more months not available

N/R: No Report

Note: A dash indicates that a percent change could not be calculated because at least one period had no activity

Source: Center for Business Research, College of Business, Arizona State University

'87 Home Sales, Appreciation, Affordability Vary Throughout Valley

HOME SALES

Home sales declined during 1987 in all but four of the 14 larger cities in the Phoenix metropolitan area, producing a 7-percent drop in sales for the year. Chandler, Tempe and Peoria took the biggest losses (see Table 1).

Of those cities where more homes sold during 1987, Sun City West's sales jumped the most, followed by Fountain Hills, Paradise Valley, and Gilbert. Only Fountain Hills ranked in the top three growth-cities in 1985 and 1986 as well.

The median sales price of all homes sold in the Valley during 1987 rose 3 percent. Only in Gilbert did prices climb considerably more (37 percent), due primarily to activity in planned area developments. Paradise Valley followed, with a 10-percent increase.

Paradise Valley's median price was considerably higher than that of any other city ($325,000), followed by Carefree/Cave Creek and Scottsdale. Prices were lowest in Sun City and Phoenix.

HOME APPRECIATION

Only Sun City West's appreciation rate of 9 percent was much greater than the metro median of 2.4 percent; this city was also the only one to outperform the Valley inflation rate of 4.1 percent. Homes in Chandler, Mesa, Peoria and Scottsdale appreciated somewhat more than the overall median.

Areas with higher-priced homes and/or a larger proportion of new homes typically enjoy higher appreciation rates.

HOME AFFORDABILITY

Affordability of new single-family homes was highest in Glendale, the only city where a median-priced new home was affordable to the median-income household.

Resale-home affordability was highest in Glendale and Phoenix; median-priced resale homes were also affordable to the median-income household in Tempe and Mesa.

BREAKDOWN, BY CITY

Chandler/Gilbert

Home sales in Chandler fell 11 percent during 1987. New single-family homes accounted for almost all of the decline; sales of townhouses/condominiums increased 21 percent during the year.

Prices accelerated more than 7 percent on new homes of both housing types, but resale prices rose only 2 percent.

The number of units sold in Gilbert decreased slightly in all categories except new single-family homes. The large increase in this category accounted for the city's 3-percent sales expansion.

Prices of both single-family homes and townhomes rose during the year, a result of newer, more expensive homes in Gilbert, primarily in planned area developments.

Homes in both Chandler and Gilbert appeared to appreciate faster than the rate for the entire metro area, but the small number of sales in Gilbert reduced the reliability of its rate. Chandler's rate of 3.3 percent was higher than the Valley's 2.4 percent rate but less than the inflation rate.

Glendale/Peoria

The most striking characteristic of the Glendale real estate market is its home affordability; both new and resale homes are more affordable than in any other large Valley city. Glendale's median sales price for both new and resale homes was lower than the Valley median in 1987, while its median income was 9 percent higher.

Price changes in Glendale were negligible for both single-family homes and townhomes; the number of sales fell 10 percent, due to de-

TABLE 1
1987 HOME SALES, APPRECIATION AND AFFORDABILITY
Metropolitan Phoenix, By City

City	Number of Sales	Percent Change from 1986	Median Sales Price	Percent Change from 1986	Median Appreciation Rate	Resale Home Affordability Index[2]	New Home Affordability Index[2]
Carefree/Cave Creek	110	-7	140,500	14	*	NA	NA
Chandler	3,830	-11	87,350	2	3.3%	NA	NA
Fountain Hills	620	24	95,000	2	*	NA	NA
Gilbert	260	4	92,175	37	*	NA	NA
Glendale	2,900	-9	76,525	-1	2.1	124	111
Mesa	9,650	-1	78,000	3	3.1	113	98
Paradise Valley	380	9	325,000	10	*	NA	NA
Peoria	2,180	-15	78,950	1	2.9	NA	NA
Phoenix	22,890	-8	73,500	2	2.1	123	92
Scottsdale	5,170	-1	114,900	6	2.9	93	83
Sun City	1,600	-6	70,000	1	2.1	NA	NA
Sun City West	1,550	35	96,500	4	9.0	NA	NA
Tempe	2,930	-13	80,725	4	2.1	118	85
MARICOPA CO. TOTAL[1]	59,250	-7	80,050	3	2.4	112	95

[1] Total does not add to sum of cities due to exclusion of cities with less than 100 sales and of unincorporated areas.

[2] An affordability index of 100 or more indicates that a median-income household could qualify for a median-priced home, assuming a conventional, fixed-rate, 30-year loan and a 15-percent downpayment.

* Insufficient number of sales

NA = Income estimates not available

Source: Arizona Real Estate Center, College of Business, Arizona State University clining sales of both new and resale single-family homes.

Glendale's 2.1 percent appreciation rate tied with three other cities as the lowest rate in the Valley, though not significantly below the overall 2.4 percent. Low rates would be expected due to the low home prices in this area, as well as the low proportion of new homes.

Peoria is notable for its large percentage of new homes; even though the proportion fell during 1987, it was second only to Sun City West. Sales dropped 15 percent during the year, while prices rose only 1 percent.

Peoria's 2.9-percent rate of appreciation placed it about mid-way in the rankings of larger Valley cities, above the metro median.

Mesa

Stable overall home sales and prices, coupled with slightly higher-than-average levels of appreciation and affordability, characterize the real estate market in Mesa. The total number of sales in 1987 declined only 1 percent. Single-family-home sales fell 4 percent, while townhome sales surged 9 percent. Prices rose 3 percent, due entirely to increases in single-family homes.

At 3.1 percent, Mesa's rate of appreciation was third-highest in the Valley, behind Sun City West and Chandler, but it was less than the Valley's inflation rate. Mesa had the second-highest level of new-home affordability; resale-home affordability was close to the Valley level.

Phoenix

High levels of resale-home affordability, low appreciation rates, and declining home sales identify the Phoenix real estate market.

Its 2.1-percent rate of appreciation tied for last place among the Valley's large cities. Appreciation was lowest in the older and/or less expensive areas of Maryvale, Christown and Metrocenter. The areas of north-central Phoenix, east Camelback, downtown and midtown Phoenix all had rates in excess of the Valley median, though no area of Phoenix had an appreciation rate as high as the Valley inflation rate.

Affordability of resale single-family homes was much higher in Phoenix and Glendale than in any other large Valley city. The median income in Phoenix was slightly under the overall Valley level, but home prices were significantly lower than in any other city.

Single-family home sales dropped 8 percent, and townhome sales declined 4 percent. The median price of single-family homes rose 3 percent, while townhome prices fell 5 percent.

Scottsdale, Paradise Valley, Fountain Hills

High home prices and appreciation rates as well as low levels of affordability are features of the real estate market in Scottsdale, Paradise Valley, and Fountain Hills.

Homes in all three of these areas appear to appreciate faster than the 2.4 percent metro rate, primarily due to the large proportion of new and/or expensive homes. Scottsdale's rate of 2.9 percent in 1987 was slightly higher; Fountain Hills and Paradise Valley appeared to have the second and third-highest rates in the Valley, behind Sun City West. However, the small number of sales in Fountain Hills and Paradise Valley reduces confidence in the exact rate of increase.

The number of Fountain Hills homes sold in 1987 soared 24 percent over the 1986 total; Paradise Valley's sales climbed 9 percent, and the number of Scottsdale home sales remained relatively constant. The median price increased only 2 percent in Fountain Hills, rose 6 percent in Scottsdale, and jumped 10 percent in Paradise Valley. The median home price in Paradise Valley – $325,000 – was almost 2.5 times higher than next-highest Carefree/Cave Creek.

Affordability of homes in Scottsdale is the lowest of all Valley cities for which income estimates can be obtained. The low level results from high home prices that more than offset the residents' higher incomes.

Sun City

Declining home sales and appreciation combine with stable home prices to describe the housing market in Sun City.

The decline in single-family home sales accounted for 1987's 6-percent drop in sales, in line with the rate of decrease for the Valley. Home prices increased only 1 percent, less than the rate for all cities but Glendale and equal to Peoria's rate.

Even though the 2.1-percent appreciation rate in Sun City was only slightly lower than the overall rate for the Valley, a downward trend is evident. This area has deteriorated from one of the highest appreciation areas in the Valley to the lowest. Contributing factors are its very low proportion of new homes, as well as its primarily lower-priced homes.

Sun City West

Home sales boomed and appreciation soared in Sun City West during 1987, while the median home price increased only moderately.

The 9-percent rate of appreciation was by far the highest in the Valley, considerably higher than the 2.4-percent Valley median. The city had the greatest proportion of homes appreciating 8 percent or more annually and the smallest percentage of homes that lost value from one purchase to the next. Sun City West's claim to the highest proportion of new homes in the Valley, combined with the distinctive character of the area, explains most of the high appreciation rate.

Home sales increased 35 percent in 1987 over 1986, significantly more than any other city. Sun City West was also the only city where sales rose more in 1987 than they did in the prior year.

Tempe

The number of Tempe homes sold dropped 13 percent; single-family-home sales declined more than townhome sales. Prices rose 4 percent, due entirely to price increases in single-family homes

Appreciation in Tempe tied for the lowest rate in the Valley, slightly below the metro median. The low proportion of new homes in Tempe probably contributed to the low rate.

Affordability of resale single-family homes was higher than the metro median, while new homes were less affordable. Tempe's median income, second only to Scottsdale's, was offset by high new-home prices, reducing affordability to just above the level for Scottsdale.

– **Sharla Kivett,** *Research Analyst Arizona Real Estate Center*

Complete Reports Available

This article summarizes more detailed reports on the appreciation and affordability of homes in the Phoenix area during the 1980s. Copies of the complete reports, which include a number of tables with textual interpretation, as well as analysis by city and district, may be obtained by calling or writing the Arizona Real Estate Center, College of Business, Arizona State University, Tempe, AZ 85287; (602) 965-5440.

Economic Difficulties Continue in Many Rural Areas

Wide disparities in economic growth, prosperity, and living standards exist between Arizona's metropolitan areas, particularly Phoenix, and the state's rural counties. A series of articles printed in *Arizona Business* since the beginning of 1987 have discussed various aspects of this topic:

- January 1987: population and employment growth
- March 1987: standard of living
- June 1987: gross county products (GCP)
- July 1987: industrial comparison report
- August 1987: urban growth
- September 1987: migration
- March 1988: coincident economic indexes

Articles in upcoming issues will again highlight population growth and GCP and will update information on the other topics.

This article discusses employment growth and unemployment and analyzes a new set of data released by the U.S. Department of Commerce. At first glance, the average wage per job supports a more positive view of rural conditions in Arizona, but further scrutiny reveals the weakened economic vitality of many rural areas.

AVERAGE WAGE

The 1986 average wage per job (wage and salary disbursements divided by wage and salary employment) in rural Arizona exceeded by 5 percent the average of U.S. nonmetropolitan areas. In contrast, the average wage in Arizona's urban areas fell short of the nationwide average for metro areas. The highest average wage in Arizona was found not in the Phoenix area but in a rural county. Greenlee County led the state, at $23,750, followed by Maricopa County ($19,441). At $17,561, the Tucson area's average wage ranked fifth, also behind those of Gila and Navajo Counties.

Relatively high rural wages historically have resulted from limited economic bases centered on a high-paying industry, typically mining. Though still 22 percent higher than that of the Phoenix area, Greenlee's average wage declined in 1986. It increased only 10 percent between 1980 and 1986, far less than the 33-percent inflation rate. In contrast, the average wage in Maricopa County rose 5 percent in 1986; the gain between 1980 and 1986 totaled nearly 40 percent.

Slow average-wage growth prevailed throughout non-urban Arizona. Between 1980 and 1986, not a single rural county recorded an increase in the average wage that kept up with the inflation rate, the advance in the U.S. non-metro average, or the gain in Arizona's metro areas. The average wage in five counties had fallen below the national figure for non-metro areas; 10 years earlier, only Graham County was lower. Rural Arizona's average wage in 1975 was only 3 percent less than in the metro areas; by 1986, it was 15 percent lower.

Further, preliminary research on the cost of living suggests that rural living costs in Arizona are not lower than in the metro areas; in some cases, they are much higher. Low wages and high costs translate into a very low standard of living.

EMPLOYMENT

Unfortunately, slow growth in wages is not the only problem facing non-metro Arizona. Rural employment gains between 1980 and 1987 totaled only 18 percent, far short of the 32-percent increase in Pima County or the 44-percent rise in Maricopa County. Yavapai and Mohave were the only non-urban counties to exceed Pima's figure; none matched Maricopa's gain. Employment declined in Apache, Greenlee and Gila Counties.

Employment gains varied widely by industry. In all geographic areas, services and the finance, insurance and real estate industry provided the greatest percent increase in jobs. Government employment growth was slow in all areas. Except in manufacturing and the transportation, communication and public utilities industry, job growth was fastest in the Phoenix area and slowest in rural Arizona.

Though Phoenix area employment continued to rise more rapidly than Tucson area employment in 1987 (in all major industries), the percent change in the rural area led the state for the second successive year. As indicated by the wide differential in the seven-year change, modest rural improvement during 1986-87 barely began to offset the weak conditions that prevailed during the first half of the decade.

While rural Arizona's employment gains outpaced the nation's between 1980 and 1986, this positive aspect fades in stature when compared to a high and rising unemployment rate.

UNEMPLOYMENT

The unemployment rate shot up during the 1980s in the non-urban counties; 10 of the 13 counties suffered from a double-digit rate in 1986. In contrast, the unemployment rate in the Phoenix and Tucson areas declined, to less than 6 percent in 1986. Though the rate decreased statewide in 1987, the annual average remained in excess of 10 percent in seven rural counties. No rural county had a rate as low as the near-5-percent rate measured in the urban areas. Overall, the rural rate of almost 11 percent was more than double the metro rate. Further, the unemployment rate was not lower than the national average in any rural county.

CONCLUSION

On the positive side, Arizona's rural areas are growing faster – both in population and jobs – than the national average. Conditions have improved since 1985. Further, the average wage is higher than in the average U.S. non-metro area.

However, the average wage in rural Arizona is lower and rising less rapidly than in the metro areas; it is also growing more slowly than in non-metro areas nationwide. Rural employment growth remains slower than in the metro areas, and the unemployment rate is higher than in Phoenix, Tucson, or the nation as a whole.

Thus, except for those who advocate growth and disregard other issues, the bottom line is that numerous Arizona rural areas are hurting. Many residents are unemployed, and many of those with jobs endure a low standard of living.

– Tom R. Rex
Research Manager

Rural Coincident Index Outpaces Metro Indexes in December

Rural Arizona's economy expanded more in December than the economies of the state's two metropolitan areas, continuing the pattern of the four previous months, when gains of 0.5 to 1.0 percent were recorded in the coincident economic index for non-urban Arizona. The index rose 0.7 percent in December to a record-high 131.0 (1982 = 100).

After a sharp decline in November, metro Phoenix's index climbed 0.2 percent to 140.9. The index for the Tucson metropolitan area was unchanged at 137.0, following three straight strong advances.

Varying employment gains were responsible for most of the differential in growth of the indexes during the last five months of 1987. Strong employment increases were recorded in rural Arizona, but job creation in Pima County was modest; employment was stagnant in Maricopa County.

In December, little change was recorded in the retail sales and unemployment rate components of the coincident indexes. In the Phoenix area, the commercial-building-permit valuation rose modestly from November's very low level, but employment declined slightly. Though employment rose in the Tucson area, building permits tumbled, offsetting November's gain. Employment grew strongly in the rural area, while building permits were flat.

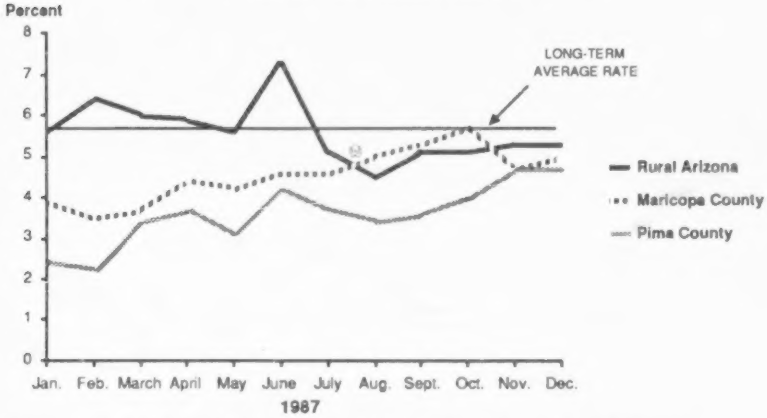
The December figures reflect revisions to 1987 monthly employment and unemployment data reported by the Arizona Department of Economic Security. With the updated information, the coincident indexes show that economic growth was faster early and late in the year but slower during the summer than originally reported. Overall, the economies of the Phoenix area and non-urban Arizona were healthier than first thought, but the net effect for the Tucson area was nil.

For the entire year, subpar growth afflicted all areas. However, the economies of Pima County and non-urban Arizona improved late in the year from weakness experienced during the summer (see Figure I). In contrast, Maricopa County's economy languished late in the year after showing strength during the summer.

The composite statewide measure rose 0.2 percent in December to a new high of 138.4.

– Tom R. Rex
Research Manager

FIGURE I
COINCIDENT ECONOMIC INDEXES
Year-to-Year Percent Changes



Source: Center for Business Research, College of Business, Arizona State University

February Purchasing Indicators Register Solid Gains

The Arizona economy moved to new, higher performance levels in February. All of the purchasing indicators again were strongly positive (see Table 1), with solid increases registered for new orders received, production, and employment. Inventory gains added to the upward momentum, and lead times stretched further. The only negative note was another jump in price levels.

TABLE 1
FEBRUARY PURCHASING SURVEY

	Percent of Purchasing Managers Indicating Each Response (February compared to January)		
Key Indicators	*Higher*	*Same*	*Lower*
Prices paid for major commodities	53	43	4
Delivery time from vendors	45	49	6
Purchased materials inventory level	37	50	13
New orders received	40	41	19
Production	33	50	17
Employment	18	74	8
Purchases	40	40	20

Source: Purchasing Management Association of Arizona and the Purchasing Management Association of Southern Arizona

The upbeat tone continues, and the October stock market meltdown seems to be well behind us. The year has started with strong back-to-back months. As exports increase, strengthening manufacturing, they will couple with healthy consumer spending to produce further upward momentum for the Arizona economy, probably throughout 1988. However, inflation is heating up and could become a serious impediment to the orderly continuation of economic growth.

– Harold Fearon

Dr. Fearon is the National Association of Purchasing Management Professor in the ASU College of Business.

Arizona Leading Index Stages Mild Comeback in January

The Arizona Index of Leading Economic Indicators increased in January to 110.1, a mild comeback from December's 109.8.

The index is based on 10 statistical economic indicators and is designed to predict economic activity up to six months in the future. Six of the 10 components rose in December.

For the second month in a row, the greatest negative influence came from a seasonally adjusted decrease in the value of residential building permits. Other components pulling the index down included new orders, employment, and sensitive materials prices.

Providing the biggest boost to the index were four components that had exerted a negative influence on December's index value but turned positive in January: delivery time, inventories, production, and unemployment insurance claims. The average work week and money supply continued to have a positive impact.

TABLE 1
NET CONTRIBUTION OF INDIVIDUAL COMPONENTS TO THE ARIZONA INDEX OF LEADING ECONOMIC INDICATORS

	Net Contribution⁺			
	Oct.	*Nov.*	*Dec.*	*Jan.*
Delivery Time*	–.01	–.02	–.07	.08
Inventory Levels*	–.06	.07	–.11	.06
New Orders*	–.01	.07	–.12	–.06
Production*	.02	–.07	–.04	.05
Employment*	.07	–.01	.00	–.01
Residential Building Permits	–.16	.13	–.45	–.23
Unemployment Insurance Claims	.17	–.20	–.07	.20
Average Workweek, Manufacturing	.09	–.07	.05	.05
Money Supply	.09	–.16	.02	.19
Change in Sensitive Materials Prices	.00	–.07	–.13	–.11
OVERALL INDEX CHANGE (%)	.22	–.33	–.93	.23

⁺The net contribution of each component is calculated by multiplying the monthly percent change in its index by its relative importance.

*Based on indicators from the purchasing management associations of Arizona and southern Arizona.

Source: Economic Outlook Center, College of Business, Arizona State University

Three series that contribute values to the leading index will be revised during the next month: the money supply, sensitive prices and the average work week in manufacturing. These revisions will also allow the calculation of new seasonal adjustments.

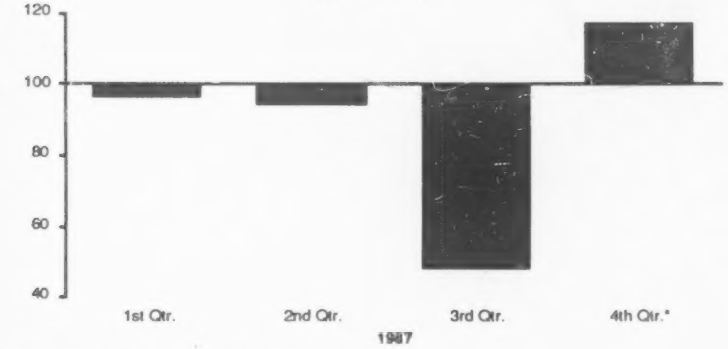
– **Tracy L. Clark,** *Economist*
Economic Outlook Center

New Business Start-ups Stumble, Recover in 1987

The number of new businesses started by metropolitan Phoenix entrepreneurs plunged during third quarter 1987. The quarterly Metro Phoenix New Business Index fell to 48 (1986 = 100) as only 397 new businesses opened during the period. However, incomplete data for fourth quarter 1987 show a surge of start-ups, pushing the preliminary index to 117. (Final figures will be available in July.)

The index measures new business start-ups, excluding franchises, branches, and relocations. Data are obtained through a cooperative agreement between the *Arizona New Business Review* and the Center for Business Research.

FIGURE I
METROPOLITAN PHOENIX NEW BUSINESS INDEX
(1986 = 100)



*Preliminary estimate, based on incomplete data

Source: Arizona New Business Review and the Center for Business Research, College of Business, Arizona State University

Start-ups during the third quarter slowed markedly in wholesale trade, finance-insurance-real estate, and services. Only 129 new service firms opened, compared to 309 firms during the same period of 1986. The service industry appears to have recovered after a slow summer. Preliminary fourth-quarter data indicate 400 service firms started, compared to 291 for fourth quarter 1986.

Through the third quarter of 1986, 2,830 new business start-ups were recorded in metro Phoenix. Data on 1987 start-ups show the pace down 18 percent, to 2,323 new businesses for the first three quarters.

– **Lee R. McPheters**
– **Yolanda Strozler**

Dr. McPheters is Professor of Economics and Director of the Economic Outlook Center. Ms. Strozier is a senior Economics major.

ARIZONA ECONOMIC INDICATORS

	Month or Quarter	Value	Percent Change from Previous Period	Percent Change from Year Ago	Year-to-Date	
					Value	Percent Change from Year Ago
GROSS STATE PRODUCT (In Billions of Dollars, at Annual Rate)						
Arizona - Current Dollars	3rd Qtr.	57.463	1.8	9.5	NA	NA
Arizona - 1982 Dollars	3rd Qtr.	48.334	0.9	5.4	NA	NA
COINCIDENT ECONOMIC INDEXES (1982 = 100)						
Arizona	Dec.	138.4	0.2	4.9	NA	NA
Metropolitan Phoenix	Dec.	140.9	0.1	5.0	NA	NA
Metropolitan Tucson	Dec.	137.0	0.0	4.7	NA	NA
Non-urban Arizona	Dec.	131.0	0.8	5.3	NA	NA
CONSUMER PRICE INDEX (1982-84 = 100)						
Metropolitan Phoenix	4th Qtr.	116.6	0.4	4.7	NA	NA
INDEX OF LEADING ECONOMIC INDICATORS (1977 = 100)						
Arizona	Jan.	110.1	0.3	–0.4	NA	NA
BUILDING PERMITS (Total Dollar Value in Thousands)						
Maricopa County	Jan.	182,008	–10	–39	182,008	–39
Pima County	Jan.	26,360	–42	–28	26,360	–28
Balance of State	Jan.	30,414	–32	–27	30,414	–27
Arizona	Jan.	238,782	–18	–37	238,782	–37
TOTAL HOUSING UNITS AUTHORIZED						
Maricopa County	Jan.	1,205	–41	–56	1,205	–56
Pima County	Jan.	235	–5	–63	235	–63
Balance of State	Jan.	788	–20	–13	788	–13
Arizona	Jan.	2,228	–32	–48	2,228	–48
HOME SALES						
Maricopa County - Number	Jan.	3,380	4.3	–28.7	3,380	–28.7
Maricopa County - Median Price	Jan.	81,000	–2.7	3.6	81,000	3.6
Maricopa County - Number	Feb.	3,790	12	–1	7,170	–16
Maricopa County - Median Price	Feb.	80,000	–1.2	0.6	80,250	1.6
HOUSING AFFORDABILITY INDEXES						
Metropolitan Phoenix - New Homes	4th Qtr.	87	–5.4	–12.1	NA	NA
Metropolitan Phoenix - Resale Homes	4th Qtr.	106	–2.8	–7.8	NA	NA
MORTGAGE INTEREST RATES (Conventional, 30-year, Fixed-rate)						
Maricopa County	Feb.	9.9	–4.8	11.2	NA	NA
POPULATION ESTIMATES (In Thousands)						
Maricopa County	4th Qtr.	1,993	0.5	2.7	NA	NA
Arizona	4th Qtr.	3,443	0.5	2.4	NA	NA
ELECTRICAL POWER SALES (In Millions of Kilowatt Hours)						
Arizona	Jan.	3,333	1.8	7.1	3,333	7.1

NA = Not Applicable

Source: Center for Business Research, College of Business, Arizona State University

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Arizona Budget Deficit

Study Reveals Many Reasons, Few Solutions

Arizona's state government faces a projected budget deficit of approximately $300 million in fiscal 1988-89, following remedies for a $50 million 1987-88 shortage. Throughout the 1980s, mid-year corrections (largely across-the-board spending reductions) frequently have been necessary to produce a legally mandated balanced budget.

This article examines Arizona governmental revenues and expenditures, particularly in comparison to those of other states. The analysis is based primarily on data for the 1985-86 fiscal year, the latest available from the U.S. Department of Commerce. Revenues are examined over time as well, to determine the cyclicality of various sources.

Though the primary emphasis is state government monies, combined state and local government revenues and expenditures are analyzed as well. In some states, certain taxing and spending authority is at a local government, rather than state government, level. Throughout this article, per-capita figures are used to compare Arizona revenues or expenditures to national averages.

In This Issue
4 AZ Population Growth
8 1st Qtr. Valley Inflation
10 Jan. Coincident Indexes
10 March Purchasing Survey
11 Feb. AZ Leading Index
12 AZ Economic Indicators

KEY FINDINGS

Arizona revenues in 1985-86 were well below the national average on a per-capita basis, whether measured at the state or combined government level. If per-person collections had matched the national average, additional hundreds of millions of dollars would have been available.

Tax collections, however, were quite near the national per-capita average. Federal intergovernmental revenues fell hundreds of millions of dollars short of the level usually received by a state of Arizona's size, accounting for most of its comparative revenue shortage.

State government expenditures per person were much lower than the national average. Combined state and local government spending, however, was about average.

Both sources and uses of government funds are much different in Arizona from the national norm. The state is highly dependent for revenue on the cyclical general sales tax, the motor vehicle license tax and the motor fuel sales tax. Compared to the average state on a per-capita basis, Arizona receives little from the income tax or from federal funds.

Spending by Arizona state government is strongly skewed toward public safety and transportation. Relatively little is spent on social services.

STATE GOVERNMENT REVENUES

Intergovernmental revenues – mostly from the federal government – provided approximately $800 million in 1985-86, 17.5 percent of state government's total revenues. Tax collections totaled $3.195 billion, 69 percent of the total; current charges – amounts received from

See "Budget Deficit," page 2

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"Budget Deficit," from page 1

the public for performance of specific services benefiting the person charged – and miscellaneous sources accounted for the rest (see Table 1).

TABLE 1
ARIZONA STATE GOVERNMENT REVENUES, 1985-86

	Revenue (in Millions)	*Per-Capita Revenue*	*Ratio of U.S. Per-Capita*	*Average Revenue (in Millions*)*	*Actual Less Average (in Millions)*
TOTAL	$4,605	$1,388	85%	$5,428	–$823
Total Intergovernmental	807	243	59	1,360	–553
Federal	733	221	57	1,278	–545
Education	239	72	105	228	11
Public Welfare	132	40	23	577	–445
Health and Hospitals	35	11	71	49	–14
Highways	205	62	107	191	14
Other	122	36	52	233	–111
Local	74	22	90	81	–7
Total Taxes	3,196	963	102	3,146	50
General Sales Tax	1,459	440	141	1,032	427
Selective Sales Tax	510	154	99	518	–7
Motor Fuel	257	78	132	194	63
Other	253	76	78	323	–70
Income Tax	873	263	74	1,184	–311
Individual	702	212	75	931	–229
Corporate	171	51	67	253	–82
License Tax	226	68	110	206	20
Motor Vehicle	168	51	159	106	62
Other	58	17	58	100	–42
Other Taxes	127	38	62	207	–80
Property	115	35	191	60	55
Other	12	4	8	147	–145
Current Charges	328	99	79	414	–86
Miscellaneous	275	83	54	508	–233
Interest Earned	103	31	42	245	–142
Other	172	52	65	264	–92

*Total revenue if per-capita revenue equaled the national average

Source: Center for Business Research, College of Business, Arizona State University, from data in *State Government Finances in 1986*, U.S. Department of Commerce.

In comparing the state to the rest of the nation, the most striking differential occurred in federal intergovernmental revenues. Arizona's per-capita amount ranked last among the 50 states, at only 57 percent of the national average. If Arizona received as much in federal monies per person as the national average, the state would have taken in an additional $550 million in 1985-86 revenues.

Reasons for this large differential include Arizona's decision not to participate in Medicaid and the policy of spending very little on social services such as health and public welfare, for which federal matching funds are available. Approximately 80 percent of the differential in federal funds occurred in the public welfare category, which includes Medicaid and other programs for which the state spends relatively little.

Mostly because of this very low federal funding, per-capita state revenues were far below the national average, ranking 38th. Taxes formed a disproportionately large source of funds, though tax collections per person were barely more than the national average. Though near average overall, Arizona ranks either very high or very low in collections from specific taxes, similar to its extremes in many sources and uses of funds.

In particular, the state relies substantially on the general sales tax, for which it collected 41 percent more per person than the national average in 1985-86, ranking fifth among all states. Other heavily used taxes include the motor fuel sales tax, for which Arizona ranked 13th, and the motor vehicle license tax.

Underutilized taxes, compared to the national average, include "other" selective sales taxes – a real estate sales tax, for example. The general license tax on corporations was just 9 percent of the national norm; about $40 million could be raised from this source before per-capita collections would exceed the national average. Small amounts could be drawn from a variety of other sources, such as raising the selective sales tax on tobacco and increasing fees on document transfers.

The most important source of possible additional revenues is the income tax. An additional $300 million from individuals and corporations could have been collected in 1985-86 before Arizona's per-person collections would have reached the national average. On a per-capita basis, the state ranked 33rd.

Current charges and miscellaneous revenues were well below the national average. Of the $320-million differential derived by multiplying the per-capita difference from the national average by the number of Arizona residents, $140 million resulted from interest earned and $75 million from royalties and rents. The overall, below-average comparison is misleading, however, because local government sources must be taken into account.

COMBINED STATE AND LOCAL REVENUES

Looking at revenues on a combined state and local basis had little impact on the analysis of most revenue sources. Combined revenues were approximately $570 million short of the national average, $525 million of which were in the category of federal intergovernmental revenues.

Total tax collections per-capita were near the national average after adjusting for payments in lieu of taxes. (For example, the Salt River Project makes a voluntary contribution in lieu of property tax, which is classified as a miscellaneous revenue source rather than a tax source). The only significant differences occurred in property taxes, which on a combined basis were 9 percent below the national per-capita average.

The major difference in the revenue picture between the state government and the combined state and local governments appeared in the current charges and miscellaneous category. While state collections were well below the national average, combined government collections were near the national norm.

STATE REVENUES OVER TIME

A major issue in Arizona's budget-balancing is the cyclicality of its revenues. The business cycle,

TABLE 2
REAL PER-CAPITA ARIZONA TAX REVENUES
Annual Percent Change

	1986	*1985*	*1984*	*1983*	*1982*	*1981*
TOTAL	3%	7%	12%	7%	–4%	–7%
General Sales Tax	2	9	23	2	–8	–13
Selective Sales Tax	8	16	9	23	–15	–6
Individual Income Tax	9	6	0	5	12	12
Corporate Income Tax	–20	–6	12	35	–16	–5
License Tax	9	12	5	9	17	–2
Property Tax	–4	–19	–4	–10	–3	–10

Source: Center for Business Research, College of Business, Arizona State University, from data in *State Government Finances* (annual reports from 1980 through 1986), U.S. Department of Commerce.

TABLE 3
ARIZONA STATE GOVERNMENT EXPENDITURES, 1985–86

	Expenditures (in Millions)	*Per-Capita Expenditures*	*Ratio of U.S. Per-Capita*	*Average Expenditures (in Millions*)*	*Actual Less Average (in Millions)*
TOTAL	$4,688	$1,413	90%	$5,194	–$506
Education	2,076	625	107	1,941	135
Social Services	689	208	47	1,455	–766
Public Welfare	480	145	48	1,001	–521
Hospitals	61	18	26	237	–176
Health	131	40	73	179	–48
Other	16	5	42	39	–23
Transportation	743	224	136	548	195
Highways	739	223	146	506	233
Other	4	1	9	42	–38
Public Safety	332	100	140	238	94
Police	71	21	139	51	20
Corrections	225	68	151	149	76
Other	36	11	95	38	–2
Environment and Housing	71	24	48	168	–97
Natural Resources	65	20	65	101	–36
Other	6	5	23	67	–61
Government Administration	158	48	91	174	–16
Financial Administration	103	31	128	81	22
Other	55	17	59	93	–38
Interest on General Debt	50	15	21	233	–183
Local Government Support	425	128	230	185	240
Other	135	41	75	250	–115

*Total expenditures if per-capita expenditures equaled the national average

Source: Center for Business Research, College of Business, Arizona State University, from data in *State Government Finances in 1986*, U.S. Department of Commerce.

which alternates booms and recessions over a roughly five-year period, greatly affects revenues. In particular, the general sales tax is highly cyclical, as seen in Table 2. (The large increase in 1984 is partially explained by the rise in the tax rate.) Selective sales taxes (the large 1983 gain is in part explained by an increase in the rate) and corporate income tax collections also are cyclical.

Most stable are the license taxes, of which the motor vehicle tax accounts for approximately three-fourths. Individual income taxes also have been relatively stable.

Arizona's tax revenues became more cyclical in the early 1980s. First, the less cyclical sales tax on food was removed in 1980. Then, the general sales tax rate was raised. This increase was necessary because revenue from the food sales tax never was replaced and because federal intergovernmental revenues shrank between 1980 and 1983. The federal reductions were severe on an inflation-adjusted, per-capita basis.

After increasing less during the early 1980s, Arizona's total revenues grew more rapidly than the national average, as expected from the state's rapid growth. Between 1983 and 1986, federal intergovernmental revenues kept pace with other receipts.

STATE GOVERNMENT EXPENDITURES

State government's per-capita expenditures were only 90 percent of the national average in 1985-86, ranking 34th. Some $500 million less was spent than if spending per-capita had equaled the national average. Further, uses of state funds varied widely from the national average (see Table 3).

In particular, Arizona state government spends little on social services. In 1985-86, spending in the public welfare category alone was more than $500 million less than if per-capita spending had equaled the national average. Arizona ranked 46th in per-capita expenditures. Major components of this category include Medicaid (the AHCCCS program in Arizona) and AFDC (Aid to Families with Dependent Children). In other social service categories, Arizona's spending ranked 50th on hospitals and 40th on health care.

In contrast, the state spent considerably more on transportation and public safety than the national average. Highway spending per-capita ranked 11th, 46 percent higher than the national average. Expenditures for police protection placed ninth and spending on corrections ranked sixth.

Despite reports to the contrary, educational spending per-capita was 7 percent higher than the national average, ranking 19th. Education accounted for 44 percent of all expenditures in 1985-86, compared to 37 percent nationally.

One other area of much higher state expenditures is "local government support," in which funds raised at the state level are spent by local governments. Thus, combined government expenditures also need to be examined.

COMBINED STATE AND LOCAL EXPENDITURES

While total expenditures by state government were 10 percent less than the national per-capita average, combined government spending was approximately 1 percent higher than the national norm in 1985-86. The basic picture described in the previous section remains accurate, however. Arizona state and local governments spend heavily on public safety and transportation but sparingly on social services.

In addition to highways, police protection and corrections, combined Arizona government spending was above average on environmental categories such as natural resources and sewerage and on government administration. Further, per-capita educational spending was 13 percent above average in 1985-86. Multiplying the per-capita difference in education expenditures by the Arizona population results in $360 million of spending beyond the national average.

CONCLUSION

Since 1985-86, when a mid-year correction was not necessary to balance the budget, state government expenditures have increased more than revenues, putting the state budget increasingly out of balance. Reasons for the growing gap include below-expected revenues from the general sales tax and corporate income tax and above-predicted expenditures for the indigent health care program.

The persistent and currently acute budget problems facing the state government result, in part, from the tendency to structure revenues and expenditures to match conditions during boom phases of the economic cycle. This makes the entire process highly dependent on growth. Boom conditions cannot last more than a couple years, however, and an economic downturn is inevitable every few years. The result is constantly high expenditures but varying revenues.

Therefore, a short-term solution to the current large deficit is very difficult. Though substantial monies could be raised by instituting or increasing certain taxes, the total tax burden then would be above the national average. Increases in the individual and corporate income tax rates would raise the most money, but a real estate sales tax and a variety of specialized taxes also hold promise. In addition, user fees and a tax on services have important advantages for reducing cyclicality and regressivity.

Cutting expenditures is another alternative, but state services – measured by overall per-capita spending – already are subpar in comparison to the national average. Further, those programs on which the state spends the most – both in actual terms and in comparison to other states – are education and highways, two areas in which Arizona citizens seem to desire more, rather than less, spending. That leaves corrections as the only program in which a substantial reduction might be made.

In essence, the state now must pay for prior decisions not to build infrastructure, such as highways, and not to participate in Medicaid or spend much on social services, for which substantial federal funds are available.

In the longer term, a complete re-evaluation of the state's sources and uses of funds may be desirable. In particular, a tax system less dependent on growth is necessary. A broad review should incorporate a study of the efficiency of government expenditures. In the short term, balancing next year's budget will require some form of "revenue enhancement."

– **Timothy D. Hogan**
Director

– **Tom R. Rex**
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Metropolitan Phoenix Dominates Arizona's Population Growth

Two-thirds of Arizona's population growth between 1980 and 1987 occurred in Maricopa County. The comparable share during the 1970s was 57 percent; growth throughout the rest of the state was unusually fast during the early 1970s. Weak economies in most other areas of Arizona, coupled with an unprecedented building boom in metropolitan Phoenix, largely explain the Phoenix area's greater share of population growth in the 1980s.

Pima County's 15-percent share of state growth was down slightly from 19 percent during the 1970s. The county's estimated population was revised down from last year's estimate (see January 1987 *Arizona Business*). The appeal to the 1985 special census never was resolved; current estimates assume an undercount but not as substantial as previously supposed.

Two rural counties – Mohave and Yavapai – grew faster than Maricopa County in terms of percent change (see Table 1). Most of the other counties experienced substantially less growth. Though conditions have improved in rural Arizona since 1985, many problems remain.

This article focuses on population projections, but a detailed look at the historical record is first provided because of its relevance in making the projections.

HISTORICAL POPULATION GROWTH

Population growth is a function of three components. In Arizona, net natural increase (the excess of births over deaths) accounts for roughly one-third of total population change. Non-employment migration (mostly retirement) constitutes approximately one-seventh, while employment migration makes up about one-half.

Net employment migration to Arizona varies widely with the economic cycle. The Arizona economy follows the national economy closely in this regard, slumping every four to five years, on average. Largely because of fluctuations in job availability, net in-migration is more than twice as great during economic booms than during recessions.

In addition to this short-term cycle, growth in Arizona has followed a longer periodicity, corresponding to national demographic changes. The single most important factor underlying this long-term cycle is the age distribution of the American population, which varies as a result of fluctuating birth rates. Since the propensity to move is much higher among young people, the greater the number of young adults nationwide, the greater the net migration to Arizona.

Population growth in Arizona, therefore, was greater during the 1950s than during the 1960s (see Table 2) because of earlier fluctuations in national birth rates. During the depression years of the 1930s and the war years of the early 1940s, the number of births declined nationally. The pool of potential migrants to Arizona (and other southern and western states) was less during the 1960s, resulting in much reduced flows (a decline of more than one-third in net in-migration).

By 1970, the pool of potential migrants was expanding rapidly because of the baby boom that began in 1946. Thus, net in-migration during the 1970s and 1980s was sharply higher than in previous years. The baby boom ended in 1964; the number of births dropped more than one-fourth between the late 1950s-early 1960s peak and the mid-1970s trough (the baby-bust generation). Thus, Arizona is entering a period of almost no gain in population inflows, which will last into the next century.

Maricopa County (Metropolitan Phoenix)

Growth in the Phoenix area has been the fastest in the state since World War II. More than the Tucson area or rural Arizona, the Phoenix area's growth has come from net in-migration. In recent years, metro Phoenix has attracted more than 70 percent of the state's net in-migration.

Net in-migration has closely followed both the economic and the demographic cycles. Peak growth occurred during 1984-86 (see Table 3), due to a combination of temporary factors: a pent-up demand to move, created by the twin 1980 and 1981-82 recessions; a peak in the number of young adults nationwide; economic slumps in resource-dependent states, such as Texas, that "compete" with Arizona for migrants; and the unprecedented construction boom in the Phoenix area, which boosted job creation.

The short-term migration cycle became apparent during 1987, following a slowdown in the Phoenix area economy in late 1986 and 1987 that resulted in little new job creation. Calendar year net in-migration fell more than one-half even though no recession developed; from a peak of 19,000 per quarter in mid-1985, net in-migration dropped to 4,000 in fourth quarter 1987.

TABLE 1
1987 POPULATION ESTIMATES AT JULY 1
(In Thousands)

	1987	Change 1980-87	Percent Change 1980-87
Apache	58.0	5.9	11.3
Cochise	98.0	12.3	14.4
Coconino	90.0	15.0	20.0
Gila	40.0	2.9	7.8
Graham	24.5	1.6	7.0
Greenlee	9.0	–2.4	–21.1
La Paz	14.0	1.4	11.1
Maricopa	1,970.0	460.8	30.5
Mohave	80.0	24.1	43.1
Navajo	74.0	6.4	9.5
Pima	635.0	103.6	19.5
Pinal	105.0	14.1	15.5
Santa Cruz	25.0	4.5	22.0
Yavapai	92.0	23.9	35.1
Yuma	90.0	13.8	18.1
Non-urban	799.5	123.5	18.3
Arizona	3,404.5	687.9	25.3

Source: Center for Business Research, College of Business, Arizona State University. The 1987 estimates are based largely on work by the Arizona Department of Economic Security, Population Statistics Unit – David Lillie, in particular – but are not the state's official population estimates.

TABLE 2
DECENNIAL CENSUS POPULATION, 1900-1980

	Number				Change in Number			
	Arizona	*Maricopa*	*Pima*	*Non-urban*	*Arizona*	*Maricopa*	*Pima*	*Non-urban*
1900	122,931	20,457	14,689	87,785				
1910	204,354	34,488	22,818	147,048	81,423	14,031	8,129	59,263
1920	334,162	89,576	34,680	209,906	129,808	55,088	11,862	62,858
1930	435,573	150,970	55,676	228,927	101,411	61,394	20,996	19,021
1940	499,261	186,193	72,838	240,230	63,688	35,223	17,162	11,303
1950	749,587	331,770	141,216	276,601	250,326	145,577	68,378	36,371
1960	1,302,161	663,510	265,660	372,991	552,574	331,740	124,444	96,390
1970	1,775,399	971,228	351,667	452,504	473,238	307,718	86,007	79,513
1980	2,716,633	1,509,262	531,443	675,928	941,234	538,034	179,776	223,424

Source: U.S. Bureau of the Census (1900-1980).

Pima County (Metropolitan Tucson)

Net migration to the Tucson area has been much more erratic than to the Phoenix area but generally has followed the demographic and economic cycles. The Tucson area has grown much more slowly than the Phoenix area during the 1980s, receiving less than 15 percent of the state's net in-migration.

From the demographic cycle's trough in the mid-1960s, when the Tucson area suffered slight net out-migration, growth exploded in the early 1970s. Since then, such rapid gains have not been repeated.

Individual events have a greater impact in the Tucson area because of its smaller size (one-third the population of the Phoenix area), which partially explains the erratic nature of its growth. Thus, changes in fortunes of major companies, such as new plant openings or layoffs, may have noticeably affected overall migration figures. Further, Tucson dabbled in controlled growth in the mid-1970s and retains some of this reputation today.

Non-metropolitan Arizona

The rest of Arizona has grown more slowly than the urban areas since 1920, except for a brief period during the early 1970s. Though also relatively erratic, the growth pattern of non-metro Arizona has followed the two basic cycles.

During the 1960s, net in-migration to rural Arizona was practically nil. Growth surged during the early 1970s but has not since been duplicated. Though the flows and pattern closely resemble those of Pima County, the explanations differ.

The boom of the early 1970s was part of a national movement from urban to rural areas. That it did not last long was, in part, a result of poor economic opportunities in the rural areas.

Growth during the 1980s slowed even further as twin problems in mining and agriculture caused severe economic decline in some parts of the state.

POPULATION PROJECTIONS

In making projections, a variety of factors must be examined.

Components of Population Growth

Net natural increase varies with birth rates. This figure has increased since the late 1970s because the children of the 1946-64 baby boom all are in child-bearing years. The trend of greater net natural increase should end shortly as the baby-bust generation ages into child-bearing years.

Gradually lower fertility has been the long-term pattern in this country, accelerated by the depression and second world war and offset in the period after the war. A change in the long-term pattern is unlikely; thus, nearly stable gains from net natural increase are likely into the next century.

Non-employment migration is little changed by economic conditions but greatly affected by an aging American population. The number of elderly increased some 30 percent between 1985 and 2000, making slow gains in retirement migration likely until after 2005, when the baby-boom generation will approach retirement age.

The base factor affecting employment migration is the number of young adults nationwide. This figure will fall by several million – about 14 percent – between 1985 and 2000. The result will be no further gains in employment-related migration by the end of the century.

Other Factors Affecting Employment Migration

A number of other factors could affect employment migration, but the likelihood of changes in each is relatively small:

(1) The "pulling" effect of Arizona. Migration to Arizona is heavily dependent on local economic conditions. The economic cycle will persist, and major changes to Arizona's economic structure or performance are unlikely. The "pulling" effect – from employment, climate and lifestyle – is not likely to change, except the short-term reduction during recessions.

TABLE 3
POPULATION CHANGE
(In Thousands)

	Total Change				Net Migration			
	Ariz.	*Maricopa County*	*Pima County*	*Non-urban Ariz.*	*Ariz.*	*Maricopa County*	*Pima County*	*Non-urban Ariz.*
1961	86	62	12	12	59	49	7	3
1962	64	35	19	10	37	22	14	1
1963	50	33	9	8	25	21	4	0
1964	35	25	2	8	11	13	-2	0
1965	28	19	3	6	6	8	-1	-2
1966	30	18	5	7	10	8	2	0
1967	32	20	6	6	12	10	3	-1
1968	36	24	8	4	17	14	5	-3
1969	55	32	13	10	35	22	10	3
1970	58	34	12	12	35	22	8	5
1971	101	46	23	32	78	34	19	24
1972	112	61	27	24	90	50	23	17
1973	117	69	21	27	96	58	18	20
1974	99	61	16	22	76	50	12	14
1975	62	36	16	10	39	25	12	2
1976	60	26	11	23	37	15	7	15
1977	79	50	12	17	55	39	8	9
1978	90	58	14	18	66	46	10	10
1979	121	68	26	27	94	54	22	18
1980	99	66	12	21	70	51	7	12
1981	77	49	12	16	47	33	7	7
1982	71	41	14	15	40	25	9	6
1983	68	43	11	15	38	27	6	6
1984	110	76	15	19	79	59	10	10
1985	117	84	17	16	83	65	12	7
1986	126	88	17	21	91	68	12	12
1987	101	68	14	19	65	47	8	10
Averages								
1961-70	47	30	9	8	24	19	5	0
1971-80	94	54	18	22	70	42	14	14
1981-87	96	64	14	17	64	46	9	8

Source: Center for Business Research, College of Business, Arizona State University (1980-date) and U.S. Bureau of the Census (1960-79).

(2) "Pushing" of people from Arizona. The growing problems of Arizona's urban areas – pollution, traffic congestion, generally uncontrolled growth – probably have not yet had much impact on out-migration. Such factors can have an impact, however, as seen in California. Lack of progress toward resolving these issues will cause out-migration to rise, but probably not within the next few years.

(3) The "pulling" effect of other Sunbelt states. Economic conditions in states like Texas have an effect on migration to and from Arizona. The boom-crash cycle of resource-dependent states is unlikely to repeat itself during the rest of this century.

(4) The "pushing" effect in northern states. Economic changes in states subject to net out-migration have an impact on population flows, but this pushing effect is secondary to the pull of other regions. The economic vitality of New England has reduced, but not eliminated, net out-migration. Some recovery in midwestern economic conditions is likely, but not to a level beyond that of the 1970s.

(5) Changes in local policies. Pro- or anti-growth policies affect migration flows, but Arizona's metro areas are not presumed to alter their current stances.

(6) Changes in mobility or migration patterns. The likelihood of fluctuations is near zero, given the stability of these patterns internationally and over time. Thus, conditions such as increasing mobility of the general population or greater movement of people from the Northeast to Arizona are highly unlikely.

Scenarios

Population projections are provided in Table 4 for each of four sets of assumptions. The "middle" scenario is the most likely. In general, it assumes the continuing dominance of the economic and demographic cycles. Little else is assumed to be different from average conditions that have prevailed in the past, es-

TABLE 4
POPULATION PROJECTIONS BY DECADE, FOUR SCENARIOS
(In Thousands)

	1980	1990				2000				2010			
	Census	*Low*	*Middle*	*High*	*High2*	*Low*	*Middle*	*High*	*High2*	*Low*	*Middle*	*High*	*High2*
Total Population													
Maricopa Co.	1,509	2,115	2,115	2,180	2,260	2,755	2,865	2,945	3,250	3,405	3,620	3,770	4,050
Pima Co.	531	670	680	700	735	805	835	930	975	950	1,010	1,180	1,260
Non-urban Ariz. ...	677	850	855	860	885	1,020	1,050	1,090	1,095	1,190	1,265	1,385	1,360
Arizona	2,717	3,635	3,690	3,740	3,880	4,580	4,750	4,965	5,320	5,545	5,895	6,335	6,670
Ten-Year Population Change													
Maricopa Co.	538	606	646	671	751	640	710	765	990	650	755	825	800
Pima Co.	180	139	149	169	204	135	155	230	240	145	175	250	285
Non-urban Ariz. ...	223	173	178	183	208	170	195	230	210	170	215	295	265
Arizona	941	918	973	1,023	1,163	945	1,060	1,225	1,440	965	1,145	1,370	1,350

Source: Center for Business Research, College of Business, Arizona State University. 1980 Census data are from the U.S. Bureau of the Census. The 'High2' scenario is from the Arizona Department of Economic Security.

pecially since 1970. For example, neither a boom nor a bust is assumed in economic conditions of other southwestern or western states, meaning some improvement from the conditions of the last few years. In sum, Arizona may expect slightly greater net natural increase and retirement migration but nearly flat employment migration, which translates to modestly greater population gains than in the 1970s and 1980s.

Lesser population gains are projected in the "low" scenario from a combination of factors. The difference from the middle scenario is not very great, reflecting the low probability of many of the alternative factors. During the rest of the 1980s, the low scenario includes a recession that is not assumed in the middle scenario until at least 1990. The most likely projection for 1990 must be hedged between the low and middle series. After 1990, most of the difference from the middle scenario results from slightly lower birth rates and net migration, the latter a result of reduced quality of life pushing people from the urban areas. An economic depression or war probably would be the only events to cause much lesser population gains in Arizona.

The difference between the high scenario and the middle series is somewhat greater. Faster population growth could result from higher birth rates and increased net migration. The latter is based on two assumptions – that other western and southwestern states continue to experience significant economic difficulties and that local policies are both pro-growth and successful in stimulating economic development.

The "high2" scenario is presented because it is the state's latest (1986) "official" projection series. It is highly unrealistic, especially for Maricopa County. It does not allow for any economic cyclicality – every year is projected to have a population change near or exceeding the record historical number. Sharp increases in employment-related migration, especially in the early 1990s, are assumed, contrary to the near stability in migration expected from the demographic cycle. The only rationale provided is highway construction in the Phoenix area. This construction, already underway, will be spread over a long span of time. While it will have a positive impact, it will not attract tens of thousands of people annually. As noted above, the likelihood is nearly nil of other factors changing to allow nearly 400,000 additional people beyond the number projected in the middle scenario to move to the Phoenix area during the next 12 years.

Much more rapid growth is forecast by the official series than by the U.S. Bureau of the Census. New projections just released by the Census Bureau show less growth, particularly after 1995, than in the Center's projections.

Maricopa County

In all scenarios, the Phoenix area will continue to grow rapidly. Only in the high scenario after the year 2000 will its growth not continue to be the fastest in the state.

In the middle scenario, net natural increase should rise slightly from the current level of about 22,000 people per year. Non-employment migration will gradually grow from the current figure of about 8,000 annually, but employment migration will barely rise from an average value near 37,000 people per year. In net, slightly more people will be added to the population in each of the next two decades.

Since the Phoenix area's growth has conformed to the economic and demographic cycles so well, the high and low scenarios are not much different from the middle series. Only a depression, war or the unlikely swing from pro-growth to anti-growth attitudes would cause a lower population than in the low scenario.

Pima County

Since the Tucson area's historical growth has been uneven, the reliability of any projection is lower. As such, the relative spread between

Complete Report Available

This article is only a portion of a comprehensive report on Arizona's population and migration. The report was compiled from this article and previous *Arizona Business* articles on the state's demographics. It includes demographics of the resident population and of migrants, historical growth, population estimates and projections, geographic patterns of migration, the relationship of population growth to economic growth, and special topics, such as seasonal migration. Copies of the report are available from the Center for Business Research, College of Business, Arizona State University, Tempe, AZ 85287; (602) 965-3961.

the low and high series is greater than in the Phoenix area.

The middle scenario is based on growth since the mid-1970s. However, given that this growth was relatively slow, employment-related migration is allowed to rise slightly more rapidly than otherwise expected. Future population changes should be greater than in the 1980s but less than in the early 1970s.

The low series is barely lower than the middle series. Relative to the Phoenix area, the middle series already represents slow growth. Further, quality of life deterioration (real or perceived) is not likely to occur in Tucson to the extent that it would impact net migration.

The high series assumes much more rapid growth, along the lines of growth during the early 1970s. Local policies and developments could have a noticeable impact in Pima County. For example, a planned community, one with a large retirement component, could result in higher population figures, especially in the next century. The high series still is below the "high2" series, but the difference is not nearly as great as in Maricopa County.

Rural Arizona

The rest of the state as a whole is expected to continue to lag the urban areas in growth. In the most likely scenario, growth will be more rapid than in the early 1980s, when many areas were hard hit by mining and/or agricultural problems, but less than in the early 1970s, which largely was an aberrant demographic phenomenon.

As in Pima County, the low series is not much different from the middle series. The likelihood of the rural area doing worse than in the recent past is slim. The high series assumes much more rapid growth, particularly after the end of the century. In contrast to the comparison in the urban areas, the high series for rural Arizona is roughly comparable to the "high2" series of projections after 1990.

CONCLUSION

The point has been made that in the past Arizona's population growth always was underprojected, resulting in the state's infrastructure and services not keeping pace with growth. Unfortunately, serious problems also result from overprojections of growth. The current public-sector fiscal situation – budget deficits at both state and local levels – illustrates that high population projections lead to high revenue and expenditure projections, which may lead to deficits when the revenues do not materialize. Further, the risk of overprojecting growth is considerable to much of the private sector. Firms expecting constant, rapid growth may easily become over-extended, such as through premature expansion.

– Tom R. Rex
Research Manager

Valley Inflation Shows No Sign of Acceleration in First Quarter

Moderate inflation in the Phoenix metropolitan area continued during first quarter 1988; the seasonally adjusted increase of 0.8 percent was comparable to the gains of the three prior quarters (see Table 1). Before seasonal adjustment, the Metropolitan Phoenix Consumer Price Index rose 0.7 percent to 117.4 (1982-84 = 100), only 3.1 percent higher than in first quarter 1987.

COMPONENT INDEXES

Both locally and nationally, inflation has not begun to accelerate as predicted by many analysts. Although another decrease in gasoline prices helped to hold down the inflation rate in the first quarter, moderate-to-small increases in each major category of the Phoenix CPI ensured another mild overall advance.

Food and Beverages

Revisions made to the CPI in 1987 incorporated an updated set of relative importance weights. The differences between the old and new weights reveal changing consumption patterns of the American public since the early 1970s. In particular, the relative importance of the food-at-home category declined, while that of the food-away-from-home category increased. Thus, even though food-at-home prices climbed a steep 1.8 percent during first quarter 1988, a decrease in food-away-from-home prices – the fourth in the last six quarters – kept the overall food and beverages advance to 0.9 percent.

Housing

After a jump in fourth quarter 1987, housing inflation moderated to 1.0 percent during the first quarter. Renters' costs again increased (see Table 2) after a string of decreases, though apartment rents barely changed. Homeowners' costs again rose moderately. Fuel and other utility costs dipped, but the index for household furnishings and operations climbed by the largest amount in two years.

Transportation

Most transportation categories recorded declines during the first quarter. Gasoline prices fell 6.4 percent but were largely offset by relatively high inflation in automobile prices. Auto maintenance and repair costs also rose.

Medical Care

The deceleration of medical care inflation continued in the first quarter. After years of high inflation (double-digit rates in six of seven years between 1979 and 1985), health care inflation began to lessen in late 1985. By 1987, the annual average gain was nearly as low as the all-items rate. A slight, 0.3-percent boost during first quarter 1988 lowered the annual rate to only 1.1 percent.

For the second quarter in a row, the indexes for professional services and non-prescription drugs and medical supplies declined. Prescription drug prices also were lower, the first drop since seasonal adjustment began in 1984. In contrast, hospital costs advanced 3.1 percent, bringing the gain in the four quarters ended first quarter 1988 to 10.7 percent.

If last year's relative weights still were used, the index for the entire medical care category would have dipped. The new relative weights give much more importance to hospital costs and much less to health insurance payments, which decreased slightly.

Other Categories

Inflation in the apparel and upkeep category continued at a relatively high rate. The other goods and services index also rose substantially, but inflation in the entertainment category moderated.

COMPARISON AREAS

Phoenix area inflation in the first quarter was nearly equivalent to the national rate (see Table 3). Local rates were higher for apparel and upkeep but lower for medical care.

During the four quarters ending first quarter 1988, inflation in the Phoenix area was less than the national average. In the transportation category, annual inflation slowed from 10 percent at the end of 1987, above the national average, to less than 2 percent, below the national average. Inflation also was lower for medical care, but higher for apparel and upkeep, than the U.S. rate.

OUTLOOK

Because inflation during the first quarter was somewhat less than expected, the forecast of 1988 rates, made at the end of 1987, was too high. The most likely scenario assumes an acceleration in the seasonally adjusted rates to approximately 1.3 percent per quarter from the roughly 0.9 percent that prevailed between second quarter 1987 and first quarter 1988. The result is an annual average rate near 3.5 percent with a year-over-year rate at the end of 1988 of slightly more than 4 percent.

Should inflation not accelerate, the annual average rate would barely exceed 3 percent with a year-end rate of only 3.5 percent. Even if inflation were to surge as it did in first quarter 1987, when gasoline prices soared, the 1988 annual average increase would hardly exceed last year's 4.1 percent.

– **Tom R. Rex**
Research Manager

TABLE 1
PERCENT CHANGES IN
METROPOLITAN PHOENIX CONSUMER PRICE INDEX

		Seasonally Adjusted from Preceding Quarter				
Expenditure Category	*Relative Importance*	*1st 1987*	*2nd 1987*	*3rd 1987*	*4th 1987*	*1st 1988*
ALL ITEMS	100.0	2.1	1.1	0.7	0.9	0.8
Food and Beverages	16.4	–0.2	0.5	0.9	0.6	0.9
Housing	42.4	0.5	0.2	0.5	2.3	1.0
Apparel and Upkeep	5.8	–2.5	2.8	2.7	0.9	2.3
Transportation	19.1	8.1	3.0	0.9	-2.0	–0.5
Medical Care	6.7	1.8	2.7	–2.1	0.9	0.3
Entertainment	4.6	2.4	–1.2	2.0	3.1	1.2
Other Goods and Services	5.0	2.0	0.3	2.9	0.6	2.2

TABLE 2
METROPOLITAN PHOENIX CONSUMER PRICE INDEX
First Quarter 1988

	Index (1982-84 = 100)		Percent Change from	
Expenditure Category	*Last Quarter*	*This Quarter*	*Last Quarter* *	*Year-Ago Quarter*
ALL ITEMS	116.6	117.4	0.8	3.1
Food and Beverages	115.0	116.6	0.9	2.3
Food	114.6	115.5	0.3	1.7
Food at Home	114.4	117.4	1.8	3.6
Cereal and Bakery Products	126.9	132.5	3.3	7.0
Meats, Poultry, Fish, and Eggs	109.3	108.9	–0.9	2.4
Dairy Products	112.5	113.1	–0.6	2.2
Fruits and Vegetables	117.7	126.9	5.8	11.2
Other Food at Home	112.0	115.2	2.9	–0.8
Food Away from Home	115.0	114.0	–1.3	–0.2
Housing	113.1	113.8	1.0	3.6
Shelter	114.4	115.8	1.4	3.5
Renters' Costs**	119.1	119.6	1.0	1.3
Homeowners' Costs**	116.3	118.0	1.5	3.9
Fuel and Other Utilities	112.6	108.0	–1.4	4.2
Gas (piped) and Electricity	110.6	100.8	–4.0	2.7
Household Furnishings/Operations	109.3	113.0	2.4	3.9
Apparel and Upkeep	113.2	114.7	2.3	6.6
Transportation	113.8	113.7	–0.5	1.8
Private Transportation	113.9	114.4	–0.5	2.1
New and Used Cars	124.2	127.6	2.4	7.2
Motor Fuels	78.0	73.7	–6.4	–8.5
Public Transportation	109.6	106.3	–0.9	–0.1
Medical Care	141.2	142.2	0.3	1.1
Entertainment	136.6	138.9	1.2	5.6
Other Goods and Services	127.6	130.7	2.2	6.2

*Seasonally adjusted
**Base period is second quarter 1983.

TABLE 3
METROPOLITAN PHOENIX AND UNITED STATES
CONSUMER PRICE INDEXES
First Quarter 1988

	Percent Change from Last Quarter*		Percent Change from One Year Ago	
Expenditure Category	*Phoenix*	*United States*	*Phoenix*	*United States*
ALL ITEMS	0.7	0.8	3.1	3.9
Food and Beverages	1.4	1.3	2.3	2.9
Housing	0.6	1.0	3.6	3.7
Apparel and Upkeep	1.3	–4.5	6.6	3.8
Transportation	–0.1	–1.0	1.8	3.6
Medical Care	0.7	2.0	1.1	6.4
Entertainment	1.7	0.9	5.6	4.2
Other Goods and Services	2.4	1.8	6.2	6.4

*Not seasonally adjusted

Source (Tables 1, 2 and 3): Metropolitan Phoenix data compiled by the Center for Business Research, College of Business, Arizona State University, in cosponsorship with Valley National Bank; other data in Table 3 are from the U.S. Department of Labor, Bureau of Labor Statistics.

Coincident Indexes Surge Statewide in January

Vigorous economic growth prevailed throughout Arizona in January. For the fifth time in six months, gains in non-metropolitan Arizona led the state (see Figure I).

The coincident economic index for non-urban Arizona jumped 1.5 percent, its largest advance since January 1986, to a record 133.0 (1982 = 100). In Maricopa County, the 1.1-percent increase was the greatest since August 1984, helping to offset weak growth in the last five months of 1987. The index reached a new high of 142.4. Economic growth in Pima County was not as spectacular, but the above-average gain of 0.7 percent pushed the index to a record 138.0.

The index advances were led by employment gains and reductions in the unemployment rate. Employment rose strongly in the rural counties and moderately in the metropolitan areas. The unemployment rate fell sharply in Maricopa County and rural Arizona, by one of the largest amounts ever in each area. Pima County's rate decreased moderately.

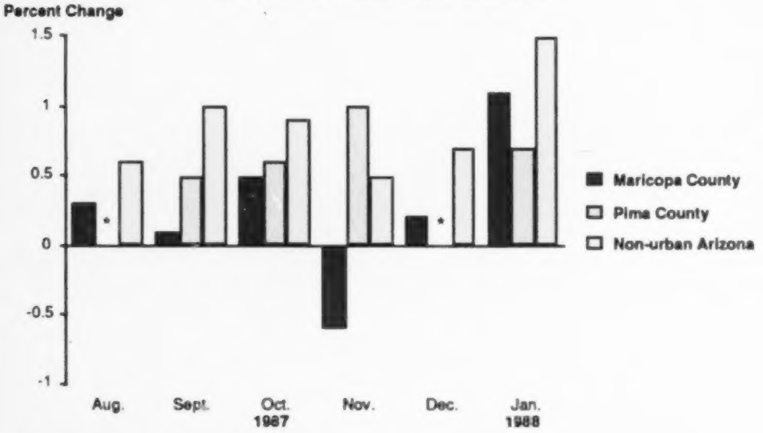
In contrast, retail sales were flat in the Phoenix area and down slightly elsewhere. The valuation of commercial building permits declined in rural Arizona and in Maricopa County; the value in the Phoenix area was the lowest since the 1981-82 recession. Though commercial permit values were flat in the Tucson area, this level was the lowest since records began in 1974.

For the 12 months ending in January, the Maricopa County economy expanded at a slightly subpar rate, while economic growth elsewhere exceeded the state's long-term average of 5.7 percent.

The composite statewide measure rose 1.1 percent in January to a record 139.9.

– Tom R. Rex
Research Manager

FIGURE I
CHANGE IN COINCIDENT INDEXES



*No change

Source: Center for Business Research, College of Business, Arizona State University

March Purchasing Indicators Send Mixed Signals

The Arizona economy ended the first quarter at a new, high level, thanks to strong March increases in new orders received and production (see Table 1). Employment also again enjoyed consistent growth. Two negative signs clouded the picture: First, for the second consecutive month, purchased materials inventories experienced a large increase. If this trend continues, it could cause problems later. Second, the high price-increase rate foreshadows a growing inflation problem. The positive sign is that the monthly price-increase rate, although high, was the smallest of the past three months.

Arizona's good economic health should continue through the rest of the year. Consumer spending and rising exports will further strengthen the manufacturing sector, causing higher output and capital spending rates. The greatest concern is the persistent trend of price increases, which is likely to intensify as the economy moves to even higher levels over the balance of the year.

TABLE 1
MARCH PURCHASING SURVEY

	Percent of Purchasing Managers Indicating Each Response (March compared to February)		
Key Indicators	*Higher*	*Same*	*Lower*
Prices paid for major commodities	49	47	4
Delivery time from vendors	34	57	9
Purchased materials inventory level	38	46	16
New orders received	42	38	20
Production	40	45	15
Employment	22	66	12
Purchases	47	30	23

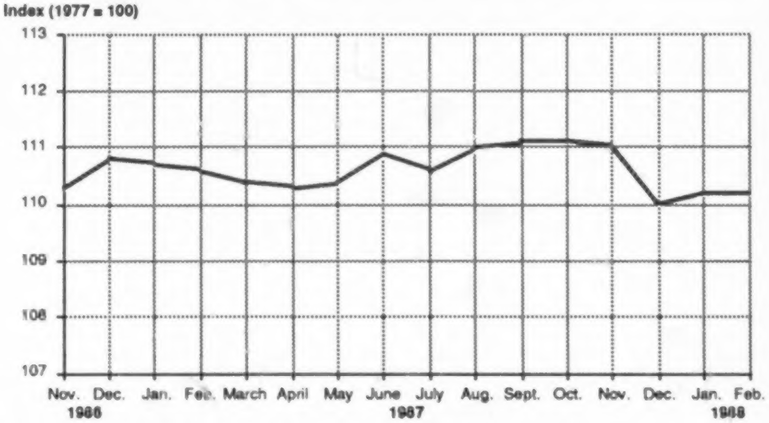
Source: Purchasing Management Association of Arizona and the Purchasing Management Association of Southern Arizona

– Harold Fearon

Dr. Fearon is the National Association of Purchasing Management Professor in the ASU College of Business.

Arizona Leading Index Flat in February

FIGURE I
ARIZONA INDEX OF LEADING ECONOMIC INDICATORS



Source: Economic Outlook Center, College of Business, Arizona State University

TABLE 1
NET CONTRIBUTION OF INDIVIDUAL COMPONENTS TO THE ARIZONA INDEX OF LEADING ECONOMIC INDICATORS

	Net Contribution⁺			
	Nov.	*Dec.*	*Jan.*	*Feb.*
Delivery Time*	–.02	–.09	.09	.03
Inventory Levels*	.04	–.08	.04	.06
New Orders*	.04	–.11	–.05	.02
Production*	–.06	–.02	.02	–.08
Employment*	.00	.01	–.02	–.09
Residential Building Permits	.10	–.37	–.12	.01
Unemployment Insurance Claims	–.13	–.04	.13	–.23
Average Workweek, Manufacturing	.02	–.09	–.02	.00
Money Supply	–.06	–.02	.22	.26
Change in Sensitive Materials Prices	–.05	–.09	–.09	–.06
OVERALL INDEX CHANGE (%)	–.11	–.91	.20	–.07

⁺The net contribution of each component is calculated by multiplying the monthly percent change in its index by its relative importance.

***Based on indicators from the purchasing management associations of Arizona and southern Arizona.**

***Source:* Economic Outlook Center, College of Business, Arizona State University**

The Arizona Index of Leading Economic Indicators was unchanged in February, matching January's revised 110.2 (Figure I).

The index is based on 10 statistical economic indicators and is designed to predict economic activity up to six months in the future. Revisions were made this month to the money supply figures, sensitive prices, average hours worked, the price index used to adjust building permit values, and the factors used to seasonally adjust the data. These revisions have resulted in minor changes in prior index values.

Three of the five seasonally adjusted components derived from a survey of Arizona purchasing managers exerted a positive influence in February. Changes in supplier delivery times, inventory levels, and new orders helped to pull the index up, while employment and production pushed downward. Sensitive prices and unemployment claims also were negative influences.

The national money supply (M2) rose for the second month in a row, and the seasonally adjusted value of residential building permits also increased slightly.

OUTLOOK

The recent performance of Arizona's leading index gives no indication that the pace of economic growth in 1988 will significantly exceed that recorded in 1987. Growth will be positive but unevenly distributed.

One sector with optimistic prospects is the tourism industry. Arizona restaurant and bar sales have been stronger than the sales of other retail components, which suggests visitor spending is having a positive impact. Vacation spending is supported by stable consumer confidence and low unemployment rates. Because of the falling dollar, many will choose domestic travel over more expensive foreign vacations.

The falling dollar was expected to help export-oriented industries compete in foreign markets. So far, agriculture has been the primary beneficiary. Arizona employment statistics have yet to provide tangible evidence of a gain in manufacturing jobs.

While Arizona manufacturing employment was flat last year, some Midwestern states that typically supply population flows to Arizona were adding to manufacturing payrolls. Illinois created more than 10,000 new manufacturing jobs during 1987, and Wisconsin added 15,000. Such figures very likely have played a role in slowing Arizona population growth. On the positive side, reduced rates of population growth tend to moderate increases in the unemployment rate.

Construction continues to be the weakest sector of the Arizona economy, with job losses anticipated for the rest of the year. Commercial building's outlook is affected by the sizable inventory on hand, and the favorable changes in population flows and interest rates necessary to jolt the residential market are not expected anytime soon.

In summary, an analysis of recent movements in the Arizona index of leading indicators and a review of current economic conditions lead to an outlook of relatively slow growth in the months ahead, with some strength in trade and services, sluggishness in manufacturing, and weakness in construction.

– **Tracy L. Clark,** *Economist*
Economic Outlook Center

ARIZONA ECONOMIC INDICATORS

	Month or Quarter	Value	Percent Change from Previous Period	Percent Change from Year Ago	Year-to-Date	
					Value	Percent Change from Year Ago
GROSS STATE PRODUCT (In Billions of Dollars, at Annual Rate)						
Arizona - Current Dollars	3rd Qtr.	57.463	1.8	9.5	NA	NA
Arizona - 1982 Dollars	3rd Qtr.	48.334	0.9	5.4	NA	NA
COINCIDENT ECONOMIC INDEXES (1982 = 100)						
Arizona	Jan.	139.9	1.1	5.4	NA	NA
Metropolitan Phoenix	Jan.	142.4	1.1	5.2	NA	NA
Metropolitan Tucson	Jan.	138.0	0.7	5.8	NA	NA
Non-urban Arizona	Jan.	133.0	1.5	6.0	NA	NA
CONSUMER PRICE INDEX (1982-84 = 100)						
Metropolitan Phoenix	1st Qtr.	117.4	0.7	3.1	NA	NA
INDEX OF LEADING ECONOMIC INDICATORS (1977 = 100)						
Arizona	Feb.	110.2	–0.1	–0.4	NA	NA
BUILDING PERMITS (Total Dollar Value in Thousands)						
Maricopa County	Feb.	216,326	18	–19	398,334	–30
Pima County	Feb.	28,879	9	–39	55,239	–34
Balance of State	Feb.	46,443	52	10	76,857	–8
Arizona	Feb.	291,648	22	–18	530,430	–28
TOTAL HOUSING UNITS AUTHORIZED						
Maricopa County	Feb.	1,203	0	–49	2,408	–52
Pima County	Feb.	446	89	–23	681	–44
Balance of State	Feb.	721	–8	–1	1,509	–7
Arizona	Feb.	2,370	6	–35	4,598	–42
HOME SALES						
Maricopa County - Number	March	3,240	–14	–43	10,410	–27
Maricopa County - Median Price	March	78,975	–1.3	1.9	80,000	2.4
HOUSING AFFORDABILITY INDEXES						
Metropolitan Phoenix - New Homes	4th Qtr.	87	–5.4	–12.1	NA	NA
Metropolitan Phoenix - Resale Homes	4th Qtr.	106	–2.8	–7.8	NA	NA
MORTGAGE INTEREST RATES (Conventional, 30-year, Fixed-rate)						
Maricopa County	March	9.9	0.0	11.2	NA	NA
POPULATION ESTIMATES (In Thousands)						
Maricopa County	4th Qtr.	1,993	0.5	2.7	NA	NA
Arizona	4th Qtr.	3,443	0.5	2.4	NA	NA
ELECTRICAL POWER SALES (In Millions of Kilowatt Hours)						
Arizona	Feb.	2,898	–13.0	10.0	6,231	8.4

NA = Not Applicable

Source: Center for Business Research, College of Business, Arizona State University

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Winter Residents Add 10 Percent to Valley's Population

An estimated 192,000 seasonal residents were living in the Phoenix metropolitan area (including the Apache Junction area in neighboring Pinal County) at the height of the 1987-88 season in February. This estimate is based on the results of a recently completed study that is part of ongoing ASU College of Business research on seasonal migration and its impacts. Total resident population at the same time was approximately two million.

For the past five years, researchers have surveyed the Valley's winter residents of mobile home and travel trailer/recreational vehicle parks. Starting in 1984 with a census of parks in the Mesa/Apache Junction area, the survey area has expanded, including the entire Phoenix metropolitan area since 1986. Procedures for the 1987-88 census modified the methodology used in previous years. In January, an announcement of the February survey was sent to the 714 parks on the 1986-87 list. Letters having incorrect addresses or addressed to parks no longer in operation were returned. Based upon telephone and on-site follow-ups, incorrect park names and/or addresses were corrected, and the list was pared from 714 to 676 parks.

In the second week of February, census questionnaires were mailed to each park. Non-responding parks were sent a follow-up mailing, and additional phone and on-site follow-ups were also undertaken. In all, the 1987-88 census received usable information from 376 parks containing 81 percent of total spaces.

RESULTS

As shown in Table 1, parks in the Phoenix area, including Apache Junction in the East Valley and Tonopah in the West Valley, had 58,400 mobile home spaces and 40,700 travel trailer/RV spaces – almost 100,000 total spaces. The proportion of occupied spaces in all parks averaged 85 percent, down slightly from the 89 percent of last year. An estimated 53 percent of occupied spaces Valleywide were home to seasonal residents during February. With 84,000 occupied spaces, this proportion implies a winter resident population in the parks of 44,500 households or 89,000 persons at the peak of the 1987-88 season, assuming an average of two persons per household.

In past winter resident studies, several mobile home subdivisions have been included as part of the mobile home/travel trailer/RV census. With the residents owning their own lots and with no centralized park management, it has been difficult to collect survey information for these communities. Including an estimate for these subdivisions, the total of 44,800 households or 89,600 persons is still less than the

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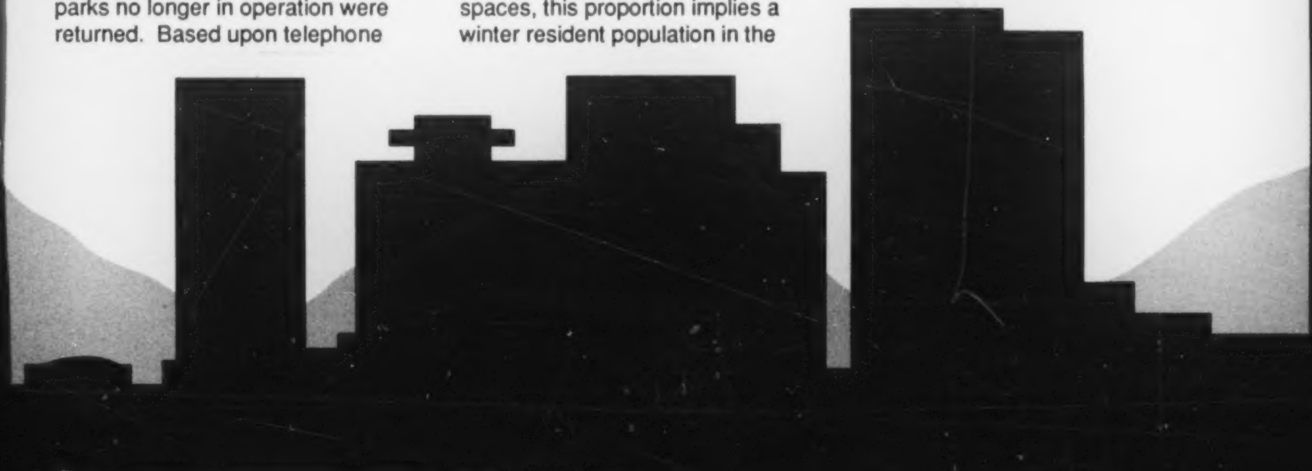

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estimated winter mobile home/travel trailer population of 47,000 households at the peak of the 1986-87 season. The lower estimate for the 1987-88 season results from: (1) fewer households living in East Valley mobile home parks being identified as winter residents, even though the total number of occupied spaces in the area increased; and (2) fewer estimated winter resident households in Phoenix, as a number of parks were no longer in operation and more spaces were occupied by permanent residents.

The results of the 1987-88 park census show that the number of winter resident households living in East Valley *travel trailer/RV parks* increased relative to the previous year. The estimated number of winter resident households living in East Valley *mobile home parks* declined, however, even though the total number of occupied mobile home spaces increased. It appears that some households previously identified by the park managers as seasonal residents now are considered permanent residents. Surveys conducted among park residents in several individual parks have shown a tendency for park households, particularly those living in mobile homes who return each season, to stay longer in the Valley over time. A sizable number of households stay six months or longer yet do not define Arizona as their legal place of residence. Table 2 shows the number of months of relatively full occupancy for East Valley parks. The proportion of mobile home parks with 90 percent or more occupancy for seven months or more was 69 percent this past season, up substantially from 57 percent during the 1985-86 season.

Responses by park owners/managers to the question, "Compared to last year, are there more, about the same, or fewer winter residents in your park this year?" are summarized in Table 3. While the estimates based upon survey information imply a slight decline in the number of winter residents, the majority of Phoenix area park owners/managers indicated "the same," with 20 percent in the East Valley saying "more" and only 13 percent responding "fewer."

TABLE 1
WINTER RESIDENTS IN METROPOLITAN PHOENIX
MOBILE HOME AND TRAVEL TRAILER/RV PARKS

1987-88 Census by Geographic Area

	East	*Phoenix*	*West*	*Total*
Number of Mobile Home Spaces	31,300	16,300	10,700	58,400
Occupancy Rate	87%	94%	79%	85%
Number of Travel Trailer/RV Spaces	32,900	2,800	4,900	40,700
Occupancy Rate	88%	93%	56%	84%
Number of Occupied Spaces	56,000	16,700	11,200	84,000
Percent of Spaces Occupied by Winter Residents	67%	20%	31%	53%
Number of Winter Resident Households	37,500	3,400	3,500	44,500

Source: Census conducted by the authors, February 1988.

TABLE 2
DURATION OF 90 PERCENT OR MORE OCCUPANCY
By Type of Park, East Valley

Months	*Mobile Home Parks*	*Travel/Trailer/ RV Parks*	*Mixed Parks*	*All Parks*
1	0%	5%	5%	4%
2	0	10	3	4
3	4	45	10	16
4	8	20	3	8
5	8	10	25	16
6	12	10	25	17
7 or more	69	0	30	35
Total	100	100	100	100
Median	11 months	3 months	5 months	5 months

Source: Census conducted by the authors, February 1988.

The census results presented in Table 1 clearly show that the Valley's winter resident population is heavily concentrated in the East Valley. More than one-half of the Valley's mobile home spaces and more than 80 percent of the travel trailer/RV spaces are located in East Valley parks. With winter residents living in 67 percent of the total occupied spaces, 84 percent (37,500 households) of the Valley's seasonal park population resided in the East Valley.

TOTAL WINTER RESIDENT POPULATION

The ASU park census attempts to count the most visible and single largest group of winter residents: the predominantly elderly seasonal residents in mobile home and travel trailer/RV parks. Substantial numbers of snowbirds also come to stay in single-family homes or condos, in seasonal apartment complexes, in hotels and motels, and with friends or relatives in the Phoenix area each winter. Given the cost and effort that would be involved in a comprehensive survey of the area's seasonal population, no census of the non-park winter residents has been undertaken. In a special survey for *Forecast 1986*, Western Savings questioned 500 seasonal residents about a variety of subjects, including housing during their stay in the Phoenix area. The proportions of households living in each type of housing during the 1985-86 season are presented in Table 4. Assuming that these proportions are still representative of the area's winter resident population, the estimate of 45,000 snowbird households living in mobile homes/travel trailers/RVs implies a total Valley winter resident population of 96,000 households or 192,000 persons in February 1988.

Unfortunately, no procedure exists for measuring fluctuations in the number of non-park winter residents coming to the Valley each winter season. The number of non-park

TABLE 3
COMPARISON OF WINTER VISITOR BUSINESS
1987-88 VERSUS 1986-87 SEASONS
By Geographic Area

	East Valley	*Phoenix*	*West Valley*	*Total*
Parks With More Seasonal Residents Than 1986-87	20%	4%	17%	15%
Parks With Similar Numbers of Seasonal Residents	60%	56%	63%	60%
Parks With Fewer Seasonal Residents Than 1986-87	14%	18%	7%	14%
Not Applicable/No answer	6%	22%	13%	11%
Total	100%	100%	100%	100%

Source: Census conducted by the authors, February 1988.

TABLE 4
WINTER RESIDENT HOUSEHOLDS:
NUMBER AND PERCENTAGE OF EACH TYPE
Metropolitan Phoenix (Including the Apache Junction Area), February 1988

	Number	*Percent*
Mobile Home/Travel Trailer/RV	45,000	47
Apartment	22,000	23
Single Family Home/Condominium	14,000	15
Hotel/Motel	8,000	8
Friends/Relatives	7,000	7
Total	96,000	100

Source: *Forecast 1986*, by Western Savings and Datapol, February 1986; and calculations by the authors.

seasonal residents may have been down during 1987-88. The impacts of the October stock market crash and related financial dislocation, along with the depressed agricultural sector, may have had negative effects upon the financial positions of some of the retired and semi-retired households who normally would have chosen to migrate to Arizona for the winter.

ECONOMIC CONTRIBUTION

The debate continues concerning the relative benefits and costs to the Valley of the Sun from the annual influx of snowbirds. On the positive side, consumer purchases by these out-of-state households produce a major injection of spending into the local economy each winter season.

In 1986-87, snowbirds injected an estimated $188 million into the Valley economy, assuming 47,000 winter resident households living in mobile homes and travel trailers, staying an average of four months, and having average monthly expenditures of $1,000 per household. Maintaining the same assumptions for length-of-stay and monthly expenditures, the estimated 45,000 seasonal mobile home/travel trailer households contributed $180 million in consumer spending during the 1987-88 season.

This figure is a conservative estimate for a number of reasons. The length-of-stay and spending assumptions are likely to be low. The estimate assumes that rent is paid only for the average length of stay, though many households rent their space on an annual basis. The estimate does not include monies spent locally by seasonal residents when purchasing their mobile homes/travel trailers/RVs in the Phoenix area. Medicare payments to local health care providers are also ignored in this estimate.

For the 1986-87 season, winter resident households living in other types of accommodations spent a total of $212 million, based upon the same length-of-stay and spending assumptions employed for the park residents. The same assumptions of an average stay of four months and average monthly expenditures of $1,000 imply spending by non-park winter resident households topped $200 million during the 1987-88 season.

As with the expenditure estimate for the seasonal residents staying in mobile homes and travel trailers, this spending total is likely to be conservative. Although many non-park households stay less than four months, they are likely to have spent much more than the assumed $1,000 per month during their stays. This is particularly true for those seasonal residents living in homes and condominiums in the Scottsdale, Paradise Valley, and Sun Cities areas and in Valley resorts. Therefore, the overall economic injection from the annual influx of winter residents to the metropolitan Phoenix area surely exceeded $400 million.

– **Stephen K. Happel**
– **Timothy D. Hogan**

Dr. Happel is Associate Professor of Economics and Dr. Hogan is Professor of Economics and Director of the Center for Business Research in the ASU College of Business.

The authors gratefully acknowledge funding from the Salt River Project and Western Savings and the cooperation of the park owners/managers who responded to the survey.

Reader Survey

To better serve the public, the Center for Business Research recently asked a sample of its subscribers to participate in a survey concerning *Arizona Business*. Based upon the responses, some changes are being incorporated into the publication. Two new business indicators, the monthly coincident economic indexes and the quarterly new business index, debuted in the April issue. The discussion of the quarterly economic forecasts will be expanded, beginning in the July issue. Given the Center's budget constraints, existing space must be reallocated – based on the survey responses – for these new or expanded topics.

The cooperation of those readers who took time to provide us with their opinions and insights is gratefully acknowledged.

Migration Still from North and East to South and West

State-to-state migration surged in 1985-86 according to the latest data available from the Internal Revenue Service. Arizona's 16 percent gain in the number of people moving to the state matched the national average, but its 4 percent rise in out-migration was among the smallest in the nation. The result was an acceleration in net in-migration second only to that in Florida.

This article provides an annual update to the geographical migration information presented in the December 1986 *Arizona Business*. The update for 1984-85 was included in the August 1987 issue.

NATIONAL MIGRATION PATTERNS

The sharp increase in mobility during 1985-86 followed a slight decline during 1984-85. Given that both years were in the midst of an economic expansion, this pattern is difficult to explain.

By Region

All regions experienced higher migration during 1985-86. Though in-migration rose substantially in some states, only two areas received more in-migration than in the prior year: the Southeast and the southern tier of states in the West. In general, the Midwest and Northeast continued to suffer net out-migration to the South and West.

Much has been written about the Northeast's economic recovery during the 1980s. Job creation multiplied while unemployment rates tumbled to the lowest levels in the nation. The low unemployment rates, however, partially reflect the undesirability of the area. Net out-migration from the Northeast was higher in 1985-86 than at any other time during the 1980s. In-migration jumped 28 percent, but out-migration soared 31 percent.

Net out-migration from the Midwest worsened significantly in 1985-86. Nearly all of the western Great Lakes and northern Great Plains states suffered their greatest net out-migration of the 1980s during this period. As in the Northeast, much of the improvement in the three prior years resulted from a recession-induced reduction in national mobility. People had difficulty leaving the Northeast and Midwest because jobs were not plentiful in the South and West. When those job opportunities resumed, so did the migration flows, even though economic conditions in the Midwest and Northeast had improved.

Though in-migration to the South rose just 12 percent, out-migration increased only 9 percent in 1985-86. Nearly every state in the region received greater net migration than in the previous year. Both the South Atlantic and East South Central areas enjoyed record net in-migration. Rather than moving to the West South Central states, where economies were mired in energy problems, it appears that people instead chose other southern states. Net in-migration to Texas, Louisiana, Oklahoma, and Arkansas fell from levels nearly double those of the South Atlantic area in 1981-82 to practically nil in 1984-85 and 1985-86, while net inflows to the South Atlantic area more than doubled.

In the West, in- and out-migration climbed less than 10 percent in 1985-86. Net inflows increased to the highest level of the 1980s. However, only the states in the southern part of the region – California, Arizona, Nevada, and New Mexico – enjoyed appreciable levels of net in-migration.

By State

Both in- and out-migration during 1985-86 were at the highest levels of the 1980s in most states. Compared to the prior year, no state experienced a decline in out-migration; in-migration decreased only to Montana, Idaho, Hawaii, and Louisiana.

In the East, a sharp worsening in net out-migration during 1985-86 gave Massachusetts and New York their weakest performances of the 1980s. In contrast, the small states of Maine, Vermont, Rhode Island, and New Hampshire all recorded their highest net in-migration of the 1980s. In the four years following the 1981-82 recession, New Hampshire ranked in the top 10 both in net migration and migration efficiency – the ratio of in- to out-migration (see Table 1).

Five southeastern states were among the top 10 in net migration, both for 1985-86 and the four years shown in Table 1. Florida's figure was 2.5 times as large as second-ranked California's in 1985-86. Texas kept its fifth-placed ranking during this period, even though the worst of its oil problems were just beginning in 1985-86. For the third straight year, its inflows remained less than one-third the level of previous years. Resource-related slumps continued to plague most of the northwestern and Rocky Mountain states.

ARIZONA MIGRATION

In-Migration

Acceleration in Arizona's in-migration during 1985-86 was not as great as in many states. The number of people moving to Arizona ranked 11th, the lowest of the 1980s. The greatest number of migrants came from California, more than double the number from sec-

TABLE 1
STATE RANKINGS
Four-year Cumulation, 1982-83 through 1985-86

Top Ten		Bottom Ten	
Net Migration	*Efficiency*	*Net Migration*	*Efficiency*
1. Florida	Florida	51. New York	Iowa
2. California	Arizona	50. Illinois	Illinois
3. Texas	Georgia	49. Ohio	New York
4. Arizona	New Hampshire	48. Michigan	Ohio
5. Georgia	North Carolina	47. Pennsylvania	Michigan
6. North Carolina	California	46. Iowa	Wisconsin
7. Virginia	Texas	45. Indiana	West Virginia
8. New Hampshire	Nevada	44. Wisconsin	North Dakota
9. South Carolina	Alaska	43. Massachusetts	Wyoming
10. Colorado	South Carolina	42. Louisiana	Pennsylvania

Source: Center for Business Research, College of Business, Arizona State University, from Internal Revenue Service Data.

ond-ranked Illinois. Other prime sources included New Mexico, Texas and Colorado. Proportionally, in-migration from the Midwest increased, while that from the South and West dipped, with the exception of New Mexico.

When the number of migrants from other states was compared to the resident populations of those states, New Mexico's migration rate to Arizona – which jumped in 1985-86 – was more than double that of any other state. Other western states also had relatively high rates; the lowest rates continued to be primarily from southeastern states.

Out-migration

The number of people leaving Arizona does not vary much from year-to-year; it continued to rank 20th in 1985-86. Proportionately, out-migration rose to the states bordering the Great Lakes. Both the proportion and number of Arizonans moving to New Mexico, Texas and California decreased. The greatest number, however, still went to California and New Mexico. Like in-migration, when adjusted for population, the highest rates of out-migration are with western states, the lowest with southeastern (and Mid-Atlantic) states.

Net Migration

Net migration to Arizona ranked third, up a notch from 1984-85. On a proportional basis, little geographic change occurred. Net in-migration was up with California and New Mexico and down with some of the midwestern states.

The net inflow was greatest from Illinois, more than double that of second-ranked Iowa. Other major suppliers included Michigan, Colorado, California, Ohio, Wisconsin, and Minnesota. Slight net out-migration was measured to Georgia, Alabama, South Carolina, Tennessee, and Nevada. The net rate adjusted for population was highest with Wyoming, New Mexico, Montana, North Dakota, and Utah.

Efficiency

Arizona's efficiency, the ratio of in- to out-migration, remained second to that of Florida in 1985-86, even though Arizona's figure rose from 152 to 169, the highest of the 1980s. Efficiencies declined with 17 states, but soared with Montana, Wyoming, Nebraska, and North Dakota. The highest efficiency was with Iowa at 557 (11 people moving from Iowa to Arizona for every two who moved in the opposite direction). Other efficient flows included Nebraska (412), Wyoming (392), North Dakota (380), Wisconsin (369), and Illinois (366). The lowest ratio was 90, with Tennessee.

COMPARISON TO COMPETITORS

With slumps continuing into 1988 in Texas, Colorado and other states with resource-dependent economies, California remains Arizona's main "competitor" for migrants. California's net in-migration exceeded Arizona's by approximately 20 percent in 1985-86, not as much as in 1984-85. With high levels of both in- and out-migration, California's efficiency (124) is much lower than that of Arizona.

Nevada and New Mexico also attract migrants similar to those moving to Arizona, but their flows are relatively small. The Southeast has benefited from the bulk of the interstate population movement in recent years, but the geographic sources of new residents largely differ from those of Arizona, so that southeastern states cannot be considered as competitors.

In the near-term, however, the performance of other states will have little impact on Arizona's attraction of migrants. The current reduced flows result from the sluggish local economy, which largely is a consequence of the over-extended construction boom from 1983 through 1986. Changing conditions in competing states as well as in northern and eastern states are secondary to Arizona's own economic health in the movement of people to the state.

– Tom R. Rex
Research Manager

Population Growth Subpar Again in First Quarter

Net in-migration to the Phoenix metropolitan area remained well below average during first quarter 1988. At 7,000 persons, the net inflow was comparable to that of the second and third quarters of 1987, up from only 4,000 during the fourth quarter.

Adding net natural increase – births less deaths – yields a total population change during first quarter 1988 of approximately 13,000. The Valley's population surpassed two million during this quarter, reaching 2,006,000 at the end of March.

For the year ending in March, net in-migration totaled only 25,000, barely more than one-half the long-term average. Since 1970, such slow growth previously occurred only during the 1975 and 1982 recessions.

The fourth quarter figure probably will be the lowest until the next recession. However, little improvement should be expected through the rest of 1988. Net inflows likely will remain 7,000 to 8,000 per quarter.

Most migrants are relatively young working people; jobs must be created locally to enable them to move to the Phoenix area. After falling substantially during 1986, the rate of job creation has held relatively steady since first quarter 1987, and is forecast to remain so through 1988. Thus, a relatively stable rate of net in-migration also is likely.

After 1988, the Valley's growth largely will be dependent on national economic conditions. Should a national recession develop, the local economy will slow and net in-migration will fall further. If the national economy remains strong, the area's growth will hinge on the success of the local economy. High vacancy rates in commercial buildings will preclude much recovery in the construction industry. The economic stimulus will have to come from another, yet-to-be-identified source.

The Phoenix area's economy and population have grown relatively slowly for more than one year. These growth rates could remain less than the long-term averages into the early 1990s.

– Tom R. Rex
Research Manager

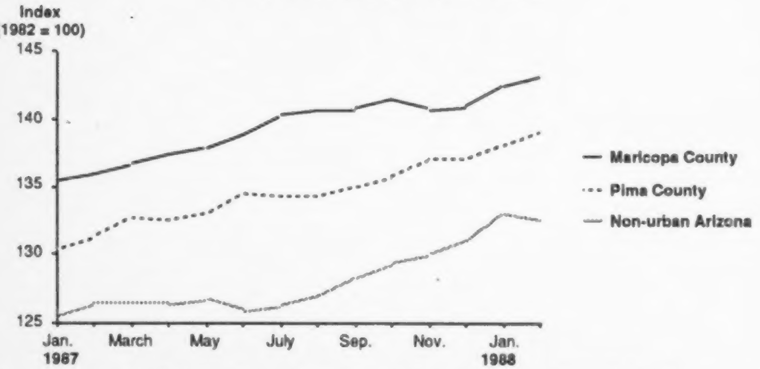
Economic Growth Remains Near Average

Economic growth, as measured by the coincident economic indexes, varied across Arizona in February. During the three months ending in February, however, growth rates throughout the state were nearly equivalent and somewhat greater than the long-term average.

Non-urban Arizona's economy was the strongest in the state from December through February, with the coincident index rising 1.8 percent. Gains in the metropolitan areas were nearly as great: 1.7 percent in Maricopa County and 1.5 percent in Pima County. This was the first time since early 1985 – when no growth briefly prevailed – that gains were relatively equal across the state.

The coincident index for the Tucson area rose 0.8 percent in February to a record 139.1 (1982 = 100). In the Phoenix area, an average 0.5-percent gain pushed the index to a high of 143.1 (see Figure I).

FIGURE I
COINCIDENT ECONOMIC INDEXES



Source: Center for Business Research, College of Business, Arizona State University

Following a large 1.5-percent advance in January, the coincident index for non-urban Arizona fell 0.4 percent to 132.5.

Retail sales increased across the state in February. The value of commercial building permits rose – though only minimally in Maricopa County – from January's depressed levels. Commercial construction in the metropolitan areas remained much lower than during most of 1987.

Employment rose marginally and the unemployment rate decreased slightly in the metropolitan areas in February. In rural Arizona, however, January's large advance in each measure was partially negated, accounting for the decline in its coincident index.

In the 12 months ending in February, growth rates ranged from a slightly subpar 4.8 percent in rural Arizona to a minimally greater-than-average 5.9 percent in the Tucson area.

The composite statewide measure rose 0.4 percent in February, reaching a high of 140.4.

– Tom R. Rex
Research Manager

April Purchasing Indicators Show Expanding Economy

The indicators from the monthly survey of purchasing managers continued to expand sharply in April, with new orders received, production, and employment moving to higher levels. Prices also rose, at a rate exceeded during the past seven years only in January 1988, indicating that inflationary pressures at the commodity level have intensified during the past several months.

As higher new order and production levels put pressure on vendor operating rates, lead times will continue to extend. In conjunction with further increases in purchase levels, the price trend will tilt up even further. The growth in inventory was modest through 1987 and still is so far this year. Higher production levels and lengthening lead times have made it difficult to build stocks. An inventory imbalance which might result in a reversal of the growth trend is not evident.

TABLE 1
APRIL PURCHASING SURVEY

	Percent of Purchasing Managers Indicating Each Response (April compared to March)		
Key Indicators	*Higher*	*Same*	*Lower*
Prices paid for major commodities	55	41	4
Delivery time from vendors	36	54	10
Purchased materials inventory level	33	44	23
New orders received	43	36	21
Production	40	43	17
Employment	25	63	12
Purchases	42	37	21

Source: Purchasing Management Association of Arizona and the Purchasing Management Association of Southern Arizona

The strong rate of activity enjoyed so far this year continues to accelerate. Further advances should occur as we move into the summer months. It is likely that inflation will intensify, as the capacity crunch worsens. Interest rates should begin to move up, restricting the high consumer and capital spending levels fueling the economic growth.

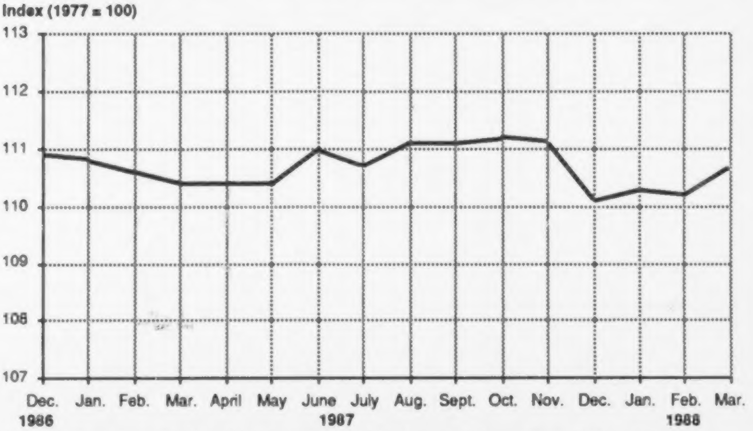
– Harold Fearon

Dr. Fearon is the National Association of Purchasing Management Professor in the ASU College of Business.

Arizona Leading Index Rises in March

The Arizona Index of Leading Economic Indicators increased in March to 110.7 (see Figure I). The index staged a comeback from February's 110.2 level, but was still barely above the 110.4 of March 1987.

FIGURE I
ARIZONA INDEX OF LEADING ECONOMIC INDICATORS



Source: Economic Outlook Center, College of Business, Arizona State University

TABLE 1
NET CONTRIBUTION OF INDIVIDUAL COMPONENTS TO THE ARIZONA INDEX OF LEADING ECONOMIC INDICATORS

	Net Contribution⁺			
	Dec.	*Jan.*	*Feb.*	*Mar.*
Delivery Time*	−.09	.09	.03	−.09
Inventory Levels*	−.08	.04	.06	−.02
New Orders*	−.11	−.05	.02	.01
Production*	−.02	.02	−.08	.06
Employment*	.01	−.02	−.09	.01
Residential Building Permits	−.37	−.12	−.10	.31
Unemployment Insurance Claims	−.04	.13	−.23	.05
Average Workweek, Manufacturing	−.09	−.02	.05	.05
Money Supply	.00	.23	.26	.12
Change in Sensitive Materials Prices	−.09	−.10	−.06	.01
OVERALL INDEX CHANGE (%)	−.89	.21	−.15	.50

⁺The net contribution of each component is calculated by multiplying the monthly percent change in its index by its relative importance.

*Based on indicators from the purchasing management associations of Arizona and southern Arizona.

Source: Economic Outlook Center, College of Business, Arizona State University

The Arizona leading index is based on ten economic indicators, combined and weighted to project the pace of economic activity several months ahead. Five of the components are drawn from a monthly survey of Arizona purchasing managers conducted by Dr. Harold Fearon.

The biggest boost to the index came from five components that had exerted a negative influence on February's index value. Residential building permits, employment, production, unemployment claims and sensitive prices turned positive in March. The average work week, new orders and money supply continued to have a positive impact. Only two of the ten components, inventories and delivery times, were negative in March.

OUTLOOK

The index suggests that the slow to moderate economic growth recorded in 1987 will continue into the second half of 1988. The relatively flat performance of the index over the past few months offers no hint of a strengthening of the economy in the months ahead. However, the absence of a series of sharp declines means a recessionary downturn is unlikely.

The sector with the worst prospects continues to be the construction industry. Although residential building permits was the largest positive contributor to the increase in the March index, closer examination indicates that this figure is influenced by a few large projects coming on line rather than a general increase in activity. The pattern of reduced construction activity punctuated with a few large projects will continue while the industry struggles through the current period of high vacancy rates and slower population growth in the state. Population growth in Arizona has slowed because of the state's sluggish economic growth, particularly the slackened rate of job creation. In addition, improved economic conditions both in the states that supply Arizona with people and in other Sunbelt states has contributed to the state's reduced population growth.

The money supply was the second most influential component affecting the index this month. Whether the money supply continues to rise in the months ahead hinges on the Federal Reserve's perception of the danger of inflation and the fact that 1988 is an election year. Historically, the Fed has been reluctant to slow the growth of the money supply during an election year unless inflation signals are particularly strong.

The most evident characteristic of the course of the leading index over the last 18 months has been the lack of variability or any clear direction. The index has moved within a narrow range marked by a high point of 111.2 (October of 1987) and a low point of 110.1 (December of 1987 and October of 1986). This pattern in the index is consistent with the performance of the Arizona economy in 1987. The economy grew at a slow-to-moderate pace with some sectors doing well and others doing poorly. It seems likely that the rest of 1988 will be much the same.

– **Tracy L. Clark,** *Economist*
Economic Outlook Center

ARIZONA ECONOMIC INDICATORS

	Month or Quarter	Value	Percent Change from Previous Period	Percent Change from Year Ago	Year-to-Date	
					Value	Percent Change from Year Ago
GROSS STATE PRODUCT (In Billions of Dollars, at Annual Rate)						
Arizona - Current Dollars	3rd Qtr.	57.463	1.8	9.5	NA	NA
Arizona - 1982 Dollars	3rd Qtr.	48.334	0.9	5.4	NA	NA
COINCIDENT ECONOMIC INDEXES (1982 = 100)						
Arizona	Feb.	140.4	0.4	5.2	NA	NA
Metropolitan Phoenix	Feb.	143.1	0.5	5.3	NA	NA
Metropolitan Tucson	Feb.	139.1	0.8	5.9	NA	NA
Non-urban Arizona	Feb.	132.5	-0.4	4.8	NA	NA
CONSUMER PRICE INDEX (1982-84 = 100)						
Metropolitan Phoenix	1st Qtr.	117.4	0.7	3.1	NA	NA
INDEX OF LEADING ECONOMIC INDICATORS (1977 = 100)						
Arizona	March	110.7	0.5	0.3	NA	NA
BUILDING PERMITS (Total Dollar Value in Thousands)						
Maricopa County	March	298,048	37	–8	696,372	–22
Pima County	March	69,196	68	–9	136,627	–15
Balance of State	March	66,844	43	39	144,588	9
Arizona	March	434,088	42	–3	977,587	–17
TOTAL HOUSING UNITS AUTHORIZED						
Maricopa County	March	2,296	90	–8	4,704	–38
Pima County	March	1,138	124	20	1,880	–13
Balance of State	March	830	15	3	2,350	–3
Arizona	March	4,264	75	0	8,934	–26
HOME SALES						
Maricopa County - Number	April	4,450	37	14	14,860	–23
Maricopa County - Median Price	April	79,000	0	1.1	79,700	1.4
HOUSING AFFORDABILITY INDEXES						
Metropolitan Phoenix - New Homes	4th Qtr.	87	–5.4	–12.1	NA	NA
Metropolitan Phoenix - Resale Homes	4th Qtr.	106	–2.8	–7.8	NA	NA
MORTGAGE INTEREST RATES (Conventional, 30-year, Fixed-rate)						
Maricopa County	April	10.2	3.0	2.0	NA	NA
POPULATION ESTIMATES (In Thousands)						
Maricopa County	1st Qtr.	2,006	0.7	2.4	NA	NA
Arizona	1st Qtr.	3,463	0.6	2.2	NA	NA
ELECTRICAL POWER SALES (In Millions of Kilowatt Hours)						
Arizona	March	3,110	7.3	2.6	9,341	6.4

NA = Not Applicable

Source: Center for Business Research, College of Business, Arizona State University

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Quarterly Economic Forecast Update

Arizona Economy to Move Forward Through 1989

The Economic Outlook Center (EOC) expects Arizona and the Phoenix metropolitan area, still in the throes of a major building-industry "correction," to expand at a relatively subdued pace through the remainder of 1988 and 1989. Next winter it should become increasingly clear whether the state and the nation can continue to stave off a recession until after the 1990s arrive.

Recent statistical evidence suggests the U.S. economy continued to show strength through the first half of 1988, extending the longest peacetime business expansion in the nation's history. In spite of the deep slump in construction, Arizona's economy also has moved ahead this year, but by many measures it has failed to match the sanguine economic performance of other regions of the country.

The Arizona Index of Leading Economic Indicators (see page 6), which accurately foreshadowed the sharp reduction in the state's growth rate last year, indicates there is little risk of a major downturn during the remainder of 1988. It also implies there is little chance of a major rally by the Arizona economy in the months ahead.

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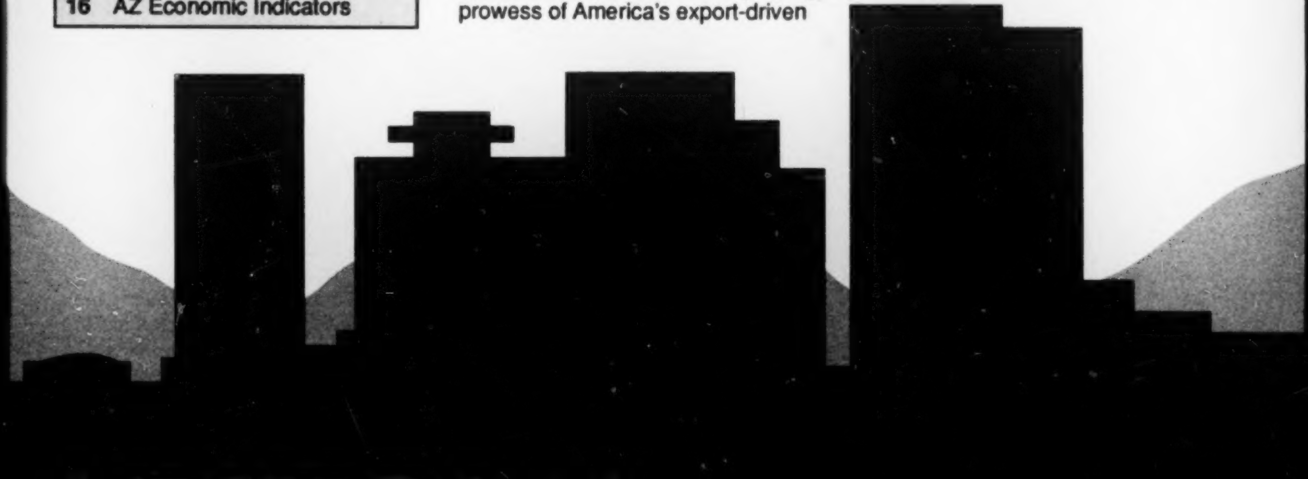
THE NATIONAL ECONOMY

The customary better-than-expected news on the nation's recent economic track record was repeated with the release of the revised first quarter GNP statistics. The latest report showed a robust advance of 3.9 percent in real output during first quarter 1988, up from the original estimate of 2.3 percent.

As usual, the figures were revised upward mainly to reflect the growing prowess of America's export-driven manufacturing industries. This pattern was not unexpected; trade statistics are among the last to be tabulated and the most likely to be incomplete or inaccurate in preliminary reports. Growth rates for the prior three quarters also were revised upward, partly based on somewhat higher consumption spending and lower imports than previously reported.

The response of most economists falls somewhere between vindication and relief. The appropriate reaction should be, "It's about time!" The exchange value of the dollar peaked in winter 1985; the yen has doubled in value against the dollar since then. Had the export data not shown significant improvement by now, a consensus of business economists doubtless would be predicting a recession, perhaps a severe one, in the near term.

The major implications of the improving export picture include a brighter outlook for corporate profits. This should have a positive effect on



ARIZONA BUSINESS

VOLUME 35, NUMBER 7

business investment expenditures during the next several quarters, another auspicious development for U.S. manufacturers. Stronger profits also may lead to higher wages and salaries, bolstering personal income and spending growth.

It is almost incredible that U.S. imports have climbed steadily (and at times rapidly) during the last three years. Consumers have defied traditional measures, such as debt-to-income ratios, savings rates, rising prices and other yardsticks used to predict spending behavior, to display an astronomical propensity to purchase more goods and services. The nation's consumption sector resembles nothing more than an imploding black hole; maybe astronomers would have better luck than economists in gauging when, or if, the American consumer will be sated.

TABLE 1
1988 AND 1989 ECONOMIC FORECASTS: UNITED STATES

	Actual *1987*	**Forecast** *1988*	**Forecast** *1989*
Gross National Product			
Millions of 1982 Dollars	3,821.1	3,937.0	4,019.7
Percent Change	2.9	3.0	2.1
Industrial Production			
Percent Change	3.8	4.5	1.9
Net Exports			
Billions of 1982 Dollars	–135.5	–113.4	–87.9
Housing Starts			
Number in Millions	1.63	1.52	1.50
Percent Change	–9.9	–6.7	–1.3
Unemployment Rate			
Percent	6.2	5.7	5.8
Consumer Price Index			
Percent Change	3.6	4.5	4.7
Three-Month Treasury Bill Rate			
Percent	5.8	6.1	6.5
Aaa Corporate Bond Rate			
Percent	9.4	9.7	10.0

TABLE 2
1988 AND 1989 ECONOMIC FORECASTS: ARIZONA

	Actual *1987*	**Forecast** *1988*	**Forecast** *1989*
Gross State Product			
Millions of 1982 Dollars	48,155	50,288	52,255
Percent Change	4.6	4.4	3.9
Personal Income			
Millions of Current Dollars	47,502	51,004	54,627
Percent Change	6.2	7.4	7.1
Retail Sales			
Millions of Current Dollars	18,001	19,048	20,016
Percent Change	4.7	5.8	5.1
Unemployment Rate			
Percent	6.3	5.8	6.3
Wage and Salary Employment			
Number in Thousands	1,383.7	1,429.1	1,471.1
Percent Change	3.4	3.3	2.9
Population			
Number in Thousands	3,405	3,491	3,580
Percent Change	3.1	2.5	2.6
Single-Family Units Permitted			
Number	27,360	23,125	20,470
Percent Change	–19.7	–15.5	–11.5
Multifamily Units Permitted[1]			
Number	12,038	7,950	6.780
Percent Change	–55.4	–34.0	–14.7

[1] Apartment complexes of three or more units

Source (Tables 1 and 2): **Economic Outlook Center, College of Business, Arizona State University**

THE U.S. OUTLOOK

The EOC's forecast for the U.S. economy is summarized in Table 1. The forecast has been upgraded to account for the splendid performance in the early months of 1988. Most of the uncertainty surrounding the short-term outlook centers on monetary policy. With the presidential election several months away, policy makers are being challenged to balance fears of inflation with a desire for continued economic growth. While they have been successful in doing so during the first half of 1988, modest increases in the inflation rate and interest rates are anticipated through the end of 1988 and 1989.

The surge in exports is expected to add to industrial growth, while higher prices for imports also should help to reduce the trade deficit and allow U.S. producers to command a larger share of the domestic market. One potential side effect may be that American firms will leverage their improved competitive position to obtain higher prices and profit margins rather than larger market shares. Another risk is the possibility that slower growth among our trading partners could curtail the export boom prematurely. On balance, however, the forecast predicts a relatively smooth ride for the U.S. economy during the next six to twelve months.

The nation experienced a surge in home building during the early months of 1988. This may have been induced by the prospect of rising mortgage rates accelerating purchases that would have taken place later in the year. In some of the hotter markets, particularly in California, soaring home prices are causing affordability to deteriorate, forcing some first-time buyers to the sidelines. This combination of circumstances has resulted in a slight reduction in the predicted national rate of housing starts to about 1.5 million per year.

THE ARIZONA FORECAST

The state's economic statistics for the early months of 1988 add up to a checkered record. Some encouraging trends have emerged, while some nagging problems have persisted. The most auspicious development was signs of renewed vigor in the manufacturing sector. On the negative side, the construction slump reached dreadful proportions.

Tables 2 and 3 summarize the Economic Outlook Center's forecasts for Arizona and Maricopa County. The forecasts are similar to those which appeared in the April 1988 issue of *Arizona Business*. Projections for some sectors have been modified to account for changes in local conditions, while others reflect the improved outlook for U.S. exports and manufacturing activity.

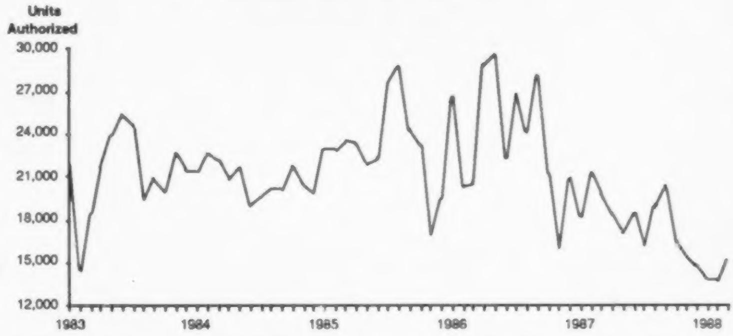
TABLE 3
1988 AND 1989 ECONOMIC FORECASTS: MARICOPA COUNTY

	Actual *1987*	**Forecast** *1988*	**Forecast** *1989*
Consumer Price Index			
Percent Change	4.1	4.6	5.0
Retail Sales			
Millions of Current Dollars	11,743	12,402	12,990
Percent Change	3.5	5.6	4.7
Unemployment Rate			
Percent	5.2	5.1	6.1
Wage and Salary Employment			
Number in Thousands	912.7	943.5	974.6
Percent Change	3.4	3.4	3.3
Population			
Number in Thousands	1,970	2,023	2,076
Percent Change	3.6	2.7	2.6
Single-Family Units Permitted			
Number	18,012	15,220	13,650
Percent Change	–24.5	–15.5	–10.3
Multifamily Units Permitted[1]			
Number	9,106	6,100	5,420
Percent Change	–50.3	–33.0	–11.1

[1] **Apartment complexes of three or more units**

Source: **Economic Outlook Center, College of Business, Arizona State University**

FIGURE I
MARICOPA COUNTY SINGLE-FAMILY HOUSING UNITS AUTHORIZED
January 1983 through March 1988
(Seasonally Adjusted Annual Rate)



Source: Arizona Real Estate Center and Economic Outlook Center, College of Business, Arizona State University

Construction

Although Arizona's economy has managed to avoid a slump resembling the recession of the early 1980s, the depressed construction sector continued to decline during first quarter 1988. Overbuilt conditions in the commercial and office segments of the market have persisted for several years, and by most measures, the metropolitan Phoenix office vacancy rate remains well in excess of 20 percent. Naturally, this has tended to retard the development of new projects. Multifamily housing construction, virtually nil early this year, still is very soft, with vacancy rates in the mid-teens and tax reform among the main reasons.

All of these factors help to explain the plunge in construction employment from its summer 1986 peak of 117,300. Since then, more than 23,000 construction workers in Arizona have lost their jobs.

The job losses are expected to continue but not at the pace observed over the last two years. Employment in the industry fell by "only" 500 during April, about one-half the average monthly loss registered during the downturn.

The weakness apparent in the commercial and multifamily markets has spread to the single-family segment. The Tucson area has been especially subdued, but Maricopa County, generally one of the nation's most vibrant markets, also has felt the pinch. The 18,000 units authorized in 1987, a healthy figure by most standards, represented a drop of nearly 25 percent from the prior year. This year, in spite of some improvement in the early spring (see Figure I), another decline of more than 15 percent is projected.

Population

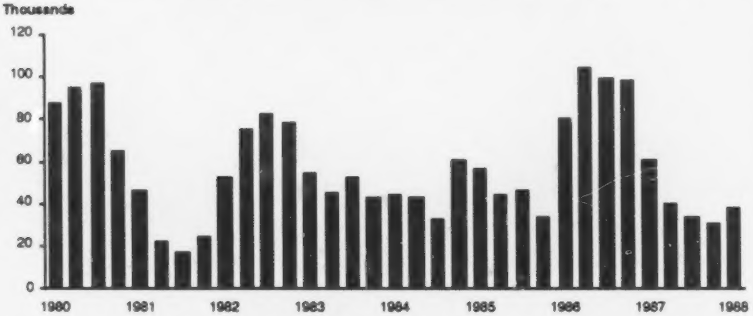
The primary reason for the boom-bust cycle that has characterized Arizona's housing sector in recent years has been the volatility of population flows. In-migration to the state advanced rapidly as the state pulled out of the recession in early 1983. The growth rate accelerated during the mid-1980s because the industrialized regions of the Great Lakes states, traditional feeders of new residents to Arizona, were slow to participate in the economic expansion, spurring many job seekers to move here. In addition, energy-dependent magnet states such as Texas and Colorado, crippled by plummeting oil prices, supplied more job seekers to Arizona and failed to attract their usual share of migrants from other states.

Rapid employment growth has caused thousands of people to flock to the state in recent years; however, for the next few years at least, a slower rate of job creation will yield relatively moderate rates of migration to Arizona. Figure II illustrates how growth of the Arizona labor force (seasonally adjusted) has fluctuated widely during the business cycle. Arizona's labor-force totals are somewhat subject to statistical vagaries related to a relatively small sample size, but there is little doubt the rate of growth slowed substantially last year. A variety of evidence – new electrical connections, slowing absorption of apartments, independent population estimates, slower retail sales growth, etc. – tends to corroborate this conclusion: The population gains of the mid-1980s were aberrant, and the current and future rate of growth will be substantially slower. The population forecast calls for growth rates of about 2.5 percent per year (still more than double the national average) for Arizona in 1988 and 1989, well off the 4-percent-plus pace of a couple of years ago. The growth rate may rise a bit during the 1990s, but it is unlikely it will average more than 3 percent per year, and it may be considerably less.

Employment

Table 4 gives an industrial breakdown of the Economic Outlook Center's employment forecast for Arizona through the end of the decade. Overall, the growth rate is expected to average 3.3 percent this year, similar to the 3.4 percent increase in 1987, but well below the respective increases of 9.7, 8.2 and 4.6 percent registered in 1984, 1985 and 1986. The aforementioned slump in construction will continue to yield losses averaging 8.2 percent in 1988 and 1.2 percent in 1989. Although manufacturing finally began to rebound earlier this year, job gains are predicted to remain modest – less than 2 percent per year. Weakness in defense-related manufacturing is offsetting much of the improvement that is developing in the advanced-technology sector. Corporate mergers and reorganizations also have tended to inhibit hiring activity among some of the larger firms located in the state.

FIGURE II
ARIZONA LABOR FORCE GROWTH
First Quarter 1980 through First Quarter 1988
(Net Change from Same Quarter One Year Earlier)



Source: Arizona Department of Economic Security

TABLE 4
ARIZONA EMPLOYMENT FORECASTS
FOR 1988-1989 (thousands)

	1987	Percent Change	1988	Percent Change	1989	Percent Change
Manufacturing	187.2	1.4	190.2	1.6	191.1	0.5
Mining	11.4	3.6	11.9	4.4	12.0	0.8
Construction	102.4	–9.5	94.2	–8.0	93.1	–1.2
TCPU*	72.0	9.3	75.1	4.3	78.3	4.3
Trade	339.5	4.3	356.5	5.0	369.6	3.7
FIRE**	94.4	6.2	96.7	0.3	97.3	2.7
Services	343.9	6.2	365.8	6.4	382.4	4.5
Government	232.9	3.5	240.7	3.3	247.3	2.7
Total Wage and Salary Employment	1,383.7	3.4	1,429.1	3.3	1,471.1	2.9
Total Employment	1,513.0	3.4	1,559.0	3.0	1,602.0	2.8
Total Unemployment	101.0	–7.3	96.0	–5.0	108.0	12.5
Labor Force	1,614.0	2.7	1,655.0	2.5	1,710.0	3.3
Unemployment Rate	6.3		5.8		6.3	

*Transportation, Communications and Public Utilities

**Finance, Insurance and Real Estate

Source: Economic Outlook Center, College of Business, Arizona State University

The widely publicized deficit plaguing the state budget is expected to limit the growth of the government sector. Even so, increases averaging about 3 percent are anticipated. As long as population and school enrollments continue to grow, local governments and school districts will add employees to their payrolls to accommodate the growth.

Personal Income

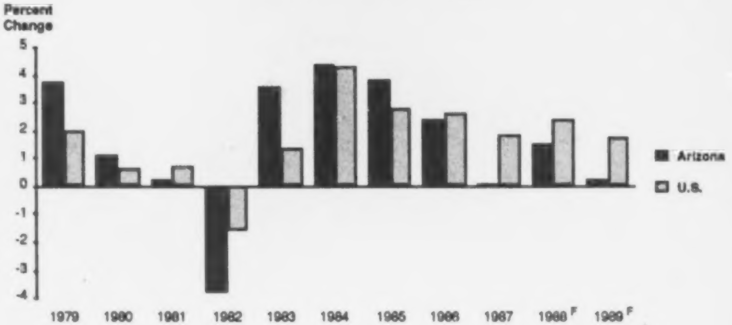
Unfortunately, smaller population gains only partially explain why Arizona personal income growth lagged last year. Preliminary estimates released in May indicate personal income in the state grew 6.2 percent in 1987, 3 full percentage points less than the rate posted in 1986. Several of the relatively well-paying industries – specifically, construction, manufacturing and finance, insurance and real estate (FIRE) – either declined or expanded slowly last year. Wage adjustments based in part on the Consumer Price Index were suppressed by the unusually small increase (due to falling oil prices) recorded during 1986.

The prospects for personal income growth are not much better through 1989. Employment growth is expected to average little more than 3 percent during the forecast period, somewhat less than in recent years, although inflation-related growth could push the rate of income growth higher. Construction employment is still sliding, and the FIRE and TCPU (transportation, communications and public utilities) sectors, which pay relatively well, are growing very slowly compared to the last several years.

The latest figures on state personal income confirm a disturbing trend. Figure III shows the relationship between real per capita personal income growth for Arizona and the United States. After adjusting for inflation and population growth, personal income in Arizona has consistently lagged the national average. Personal income in the state reached about 95 percent of the national average during the 1971-1972 period. In 1987, per capita income in Arizona was just 91 percent of the national average.

In general, the only periods during which the state gained ground against the nation coincided with major expansion in the mining industry, which is characterized by high wages. Since mining no longer represents as large a share of the Arizona economy, its influence on income growth has waned. Technological advances suggest future growth in the industry will not yield significant employment and wage gains, since modern production methods are much more capital-intensive than in the past.

FIGURE III
REAL PER CAPITA PERSONAL INCOME GROWTH
ARIZONA AND THE UNITED STATES
(Adjusted for Inflation)



F = Forecast

Source: Economic Outlook Center, College of Business, Arizona State University

SUMMARY

Most forecasts for Arizona and the United States made in the last two years have been reasonably accurate. Therefore, there is little reason to make sweeping changes to the Economic Outlook Center's forecast at this time. In general, the nation's economic performance has been somewhat better than expected, while the state has performed slightly below expectations. The disproportionate dependence of Arizona on its slumping construction industry is largely responsible for the disparity.

In spite of the stability shown by the global and regional economies, a high level of uncertainty remains. In the weeks following last autumn's stock market debacle, there was widespread fear that a recession could begin from a variety of sources. Soaring interest rates, falling investment spending, massive layoffs in the financial sector and diminished consumer confidence were just a few of the potential consequences of the crash that did not materialize. Nor did the dreaded recession.

The U.S. economy emerged from the October crash in remarkably fine shape. Exports are climbing, factory utilization is increasing, durable goods orders are strong and consumer spending remains high. Nevertheless, while most analysts have dismissed the prospect of a 1988 recession, many believe a recession could begin in 1989. Most concern revolves around the chances for rising inflation, surging interest rates and a falling dollar. This forecast envisions more of a "soft landing" than a recession next year, but it does not reject the possibility that one could develop within the next 12 months.

The outlook for Arizona and the Phoenix area is similar. The economy will keep moving forward, but a robust expansion like that of the mid-1980s will not occur until the overbuilt construction industry turns around. While that might occur as early as next year, it is very unlikely. Surplus office and apartment space and a forecast of gradually increasing interest rates should combine to reduce the pace of new construction until the 1990s.

The state's manufacturing sector represents the key element during the second half of 1988. Defense contracts were responsible for generating much of the manufacturing growth in Arizona during the last several years. Spending cuts already have had a significant impact on hiring activity. This trend is unlikely to reverse without the relocation of manufacturing operations from other states.

If the nation's export boom continues unabated, the chances increase that Arizona will experience better growth than these forecasts would suggest. However, the slow response observed to date in the state may imply that the current pattern of subdued growth will persist for the remainder of 1988 and 1989.

– **Brian Cary**
Senior Research Economist
Economic Outlook Center

Charge for Research Reports

Due to budget constraints, requests for free copies of the research reports produced by the Center for Business Research and the Arizona Real Estate Center can no longer be honored. Beginning July 1, 1988, a standard price of $5.00 per report will be charged for handling and reproduction costs. Readers will continue to be notified of the publication of new reports in *Arizona Business*. A complete list of Center for Business Research and Arizona Real Estate Center publications is available on request by mail or by calling (602) 965-3961. This list will also be included periodically in *Arizona Business*.

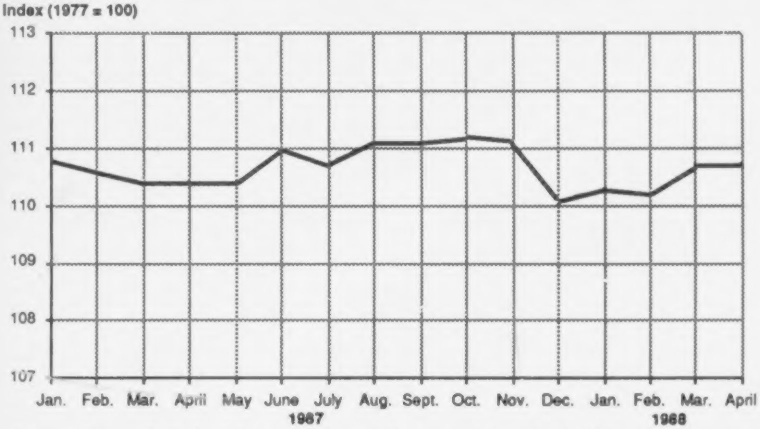
Arizona Leading Index Flat in April

The Arizona Index of Leading Economic Indicators was unchanged in April at 110.7 (see Figure 1). The index is slightly above the April 1987 value of 110.4 (1977 = 100).

The index, sponsored by Citibank (Arizona), is based on 10 economic indicators, combined and weighted to project the pace of economic activity several months ahead. Five of the components come from a monthly survey of Arizona purchasing managers done by Dr. Harold Fearon.

Providing the biggest boost to the index was a fall in seasonally adjusted unemployment insurance claims (see Table 1). The money supply, sensitive prices and new orders were also positive influences. Production and employment were neutral in April after exerting a mild positive influence in March. The negative components were residential building permits, delivery times, inventories and average hours worked in manufacturing.

FIGURE I
ARIZONA INDEX OF LEADING ECONOMIC INDICATORS



Source: Economic Outlook Center, College of Business, Arizona State University; sponsored by Citibank (Arizona).

TABLE 1
NET CONTRIBUTION OF INDIVIDUAL COMPONENTS TO THE ARIZONA INDEX OF LEADING ECONOMIC INDICATORS

	Net Contribution+			
	Jan.	*Feb.*	*Mar.*	*Apr.*
Delivery Time*	.09	.03	–.09	–.03
Inventory Levels*	.04	.06	–.02	–.06
New Orders*	–.05	.02	.01	.04
Production*	.02	–.08	.06	.00
Employment*	–.02	–.09	.01	.00
Residential Building Permits	–.12	–.10	.31	–.30
Unemployment Insurance Claims	.13	–.23	.05	.21
Average Workweek, Manufacturing	–.02	.05	.07	–.05
Money Supply	.23	.26	.11	.16
Change in Sensitive Materials Prices	–.09	–.07	.00	.03
OVERALL INDEX CHANGE (%)	.21	–.15	.51	.00

+The net contribution of each component is calculated by multiplying the monthly percent change in its index by its relative importance.

*Based on indicators from the purchasing management associations of Arizona and southern Arizona.

Source: Economic Outlook Center, College of Business, Arizona State University; sponsored by Citibank (Arizona).

RECENT PERFORMANCE

Figure I gives graphic evidence of the restricted range over which the index has moved during the last 16 months. The index has varied within a relatively narrow band marked by a high point of 111.2 (October 1987) and a low point of 110.1 (December 1987). Examination of the monthly net contributions of the seasonally adjusted individual series gives some insight into the lack of variability in the index.

Perhaps the strongest force inhibiting growth of the index has been the residential building permit component, a net negative contributor in ten of the last sixteen months. Declines in five months exceeded 10 percent. The construction industry has lost 23,400 jobs since reaching its peak employment in June 1986.

Sensitive prices, one of two national indicators included in the index, also was a net negative contributor in ten of the last sixteen months, but only three of those months yielded declines exceeding 10 percent.

The other eight components of the index do not show any clear pattern of movement over the past 16 months. Delivery time was evenly split between eight positive months and eight negative months. Inventory levels and average hours worked had nine positive months and seven negative months. New orders and unemployment insurance claims each gained during nine months, decreased in six months and had one month with no change. The national money supply and production turned in eight positive months, seven negative months and one month unchanged. Employment increased in eight months, declined during six and was unchanged in two neutral months.

OUTLOOK

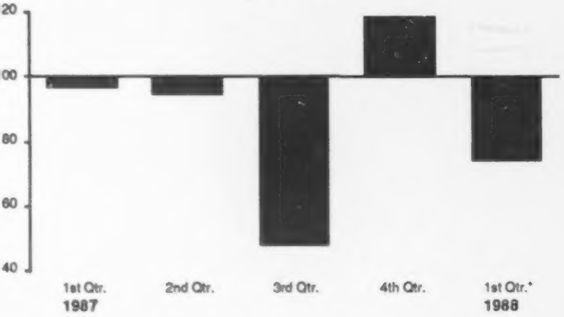
The severe weakness in the Arizona construction industry is balanced against the moderate strength of the overall economy shown in the other index components. The current outlook for the remainder of 1988 is as it has been for the recent past – one of slow positive growth for Arizona.

– **Tracy L. Clark,** *Economist*
Economic Outlook Center

New Business Start-Ups Decline in 1987

The number of new businesses started by metropolitan Phoenix entrepreneurs declined 9.2 percent during 1987. Despite a strong fourth quarter surge in start-ups (see Figure I), only 3,325 new firms were started in 1987, compared to 3,662 during 1986.

FIGURE I
METROPOLITAN PHOENIX NEW BUSINESS INDEX
(1986 = 100)



*Preliminary estimate, based on incomplete data

Source: Arizona New Business Review and the Center for Business Research, College of Business, Arizona State University

The increase in start-up activity brought the fourth quarter Metro Phoenix New Business Index to 120 (1986 = 100), recovering from a third quarter level of only 48.

The index measures new business start-ups, excluding franchises, branches, and relocations. Data are obtained through a cooperative agreement between the *Arizona New Business Review* and the Center for Business Research.

The accelerated pace of start-up activity appears short-lived however. Preliminary figures for first quarter 1988 show a drop in the index to 75. (Final figures will be available in October).

Fourth quarter 1987 start-ups showed the most activity in finance, real estate, insurance, and services, with new firms up approximately 40 percent over fourth quarter 1986. Construction start-ups during the fourth quarter were at a pace only three-fourths that of the final quarter of 1986.

– Lee R. McPheters
– Yolanda Strozier

Dr. McPheters is Professor of Economics and Director of the Economic Outlook Center. Ms.Strozier is a recent Economics graduate.

First Quarter Home Sales Fall

Home sales in Maricopa County, particularly new home sales, declined in first quarter 1988 to a level lower than in any quarter since the beginning of 1983. However, all may not be doom and gloom in the housing market; higher home sales are predicted for the balance of the year.

First quarter 1988 home sales totaled 10,125, falling 21 percent from fourth quarter 1987 and 23 percent from first quarter 1987. New home sales declined more than resales – 43 percent from the prior quarter and 52 percent from the previous year's first quarter. The median price of all homes sold fell 3 percent from the prior quarter, returning prices to a level between the first and second quarters of 1987.

Many factors combined to produce the low sales volume. The recent decline in population in-migration, fewer first-time homebuyers, a lack of pent-up demand, and possibly the stock market scare would all be expected to reduce sales volume.

The Phoenix area housing market is undoubtedly changing, as seen by homebuyers' responses to recent market conditions. Prices and interest rates typically have been important determinants of housing demand, but their effects have diminished recently. Housing inventory available for sale has been increasing, contributing to the reduction in pent-up demand. Both foreclosures and builder bankruptcies are on the rise, allowing buyers more "bargains" to choose from and lowering overall price levels. However, buyers have been less apt to jump into the market when prices or interest rates fall. This reluctance was evidenced in first quarter 1988 when prices fell and interest rates were at historically low levels, but the sales volume dropped substantially rather than rising.

A portion of the decline in home sales may be attributable to the reduced volume of Arizona migrants. Net in-migration fell throughout 1987; the fourth quarter trough of 4,000 was the lowest since 1982. Net in-migration increased to 7,000 in first quarter 1988, still lower than the long-term average of 11,000 per quarter. Even though migration has slowed, the growth rates in both job creation and in-migration are still respectable (better than the national rate) but lower than the levels the Phoenix area generally has experienced during the past few years. In-migration has an impact on the housing market, since newcomers typically account for one-fourth to one-third of total home sales.

The aging of the baby-boom generation is also starting to work against housing. The baby-bust generation is replacing the baby-boom generation, causing a reduction for the first time since the late 1960s in the number of young persons typically considered to be first-time homebuyers. This trend may be partially offset by an increase in the number of homes purchased by non-traditional household types, particularly single buyers and female heads of households.

Further, the volume of building permits issued declined throughout 1987. Only 3,081 new single-family housing units were authorized during the fourth quarter, the lowest quarter since 1982. Following the typical seasonal pattern, building permits rebounded slightly in first quarter 1988; 3,783 single-family units were authorized.

CONTRAST OF NEW/RESALE MARKET RESPONSES

The markets for new and resale homes have differed recently in their response to reduced demand. The median resale single-family home price increased from $75,000 in first quarter 1987 to its peak of $79,700 in third quarter 1987. Prices then fell to the first quarter 1988 level of $76,500, a 2 percent annual increase. The number of single-family homes resold fell 7 percent during 1987.

In contrast, the median price of new single-family homes rose each of the five quarters since first quarter 1987, though the rate of increase slowed each quarter. Prices rose from $92,050 in first quarter 1987 to $103,450 in first quarter 1988, 12 percent overall. However, part of the new-home price increase reflects the trend to purchase larger homes with more amenities. The new single-family sales volume plunged 46 percent from the same quarter last year.

The median price of resale townhouses/condominiums has also been relatively steady since first quarter 1988. Sales dipped 9 percent from the prior quarter and rose 3 percent from the previous year's first quarter.

New townhouse/condominium prices declined 11 percent from the prior quarter during first quarter 1988, returning to a price level only 1 percent higher than first quarter 1987. Sales of new units plummeted 58 percent from the prior quarter and 74 percent from first quarter 1987.

FORECAST

Interest rates have risen slightly throughout April and May, but analysts are split as to the future direction of any changes. The AREC anticipates that rates for a 30-year, conventional, fixed-rate mortgage will likely top 11 percent during the second quarter of 1988, but probably will not climb much higher throughout the rest of the year. Net in-migration can be expected to rise somewhat during the balance of 1988, to about 8,000 per quarter, but should remain below the long-term average of 11,000 per quarter. Even with slightly higher interest rates, a positive market environment coupled with higher job creation and in-migration should allow home sales to improve during 1988, but still be lower than 1987.

– **Sharla Klvett,** *Research Analyst*
Arizona Real Estate Center

The numbers in this article represent a new data series, inconsistent with that used prior to this issue. Both the data source and the method of computer processing have been changed, primarily to improve the reporting of the number of new home sales. As previously reported, the prior numbers underestimated the number of new homes sold while overestimating resale homes.

In a future article, additional history will be provided from the new data source, as well as seasonally adjusted numbers. If you desire additional information about this change or prefer numbers consistent with the old series until the new history is available, please write the Arizona Real Estate Center, College of Business, Arizona State University, Tempe, Az 85287, or call (602) 965-5440.

TABLE 1
METROPOLITAN PHOENIX HOME SALES

	Single-Family			Townhouse/Condominium			
Median Sales Price	*Resale*	*New*	*Total*	*Resale*	*New*	*Total*	*Grand Total*
Quarter 1, 1987	$75,000	$92,050	$81,400	$63,000	$70,950	$66,000	$78,500
Quarter 2, 1987	77,500	94,650	84,000	64,000	74,650	67,000	80,725
Quarter 3, 1987	79,700	100,200	86,000	62,000	75,550	64,900	82,000
Quarter 4, 1987	77,500	102,400	85,700	63,350	80,625	66,500	82,500
Quarter 1, 1988	76,500	103,450	84,000	63,000	71,900	64,825	79,900
Number of Sales							
Quarter 1, 1987	6,525	3,975	10,500	1,550	1,050	2,600	13,100
Quarter 2, 1987	9,725	4,350	14,075	2,225	1,025	3,250	17,325
Quarter 3, 1987	8,925	3,550	12,475	2,225	650	2,875	15,325
Quarter 4, 1987	6,825	3,575	10,400	1,750	650	2,400	12,800
Quarter 1, 1988	6,075	2,150	8,225	1,600	275	1,875	10,125

Note: All numbers rounded to nearest 25; subcategories may not add to total due to rounding.

Source: Arizona Real Estate Center, College of Business, Arizona State University; from data supplied by Real Estate Evaluation Group, Chandler, Az.

Housing Affordability Surges in First Quarter

Affordability of Phoenix area homes rose during first quarter 1988, the first time the index has shown improvement since first quarter 1987. Lower interest rates and home prices, as well as higher household incomes, contributed to the higher level of affordability.

The index for resale homes improved more than the new home index, jumping to 123 from 114 the prior quarter; the index for new homes rose from 86 to 91. Even though affordability of both new and resale homes improved during first quarter 1988, neither reached their first quarter 1987 level.

An index of 100 or more indicates that a median-income household is able to qualify for a median-priced home. During first quarter 1988, a median-income household could afford a $94,350 home – more than the $76,500 median-priced resale home, but less than the $103,450 median-priced new home.

COMPONENT CHANGES

Throughout the 1980s, variations in mortgage interest rates have had greater impact on housing affordability than fluctuations in either home prices or household incomes. During first quarter 1988, the effective mortgage interest rate (contract rate plus fees and charges, or "points") fell to 10.7 percent, in line with both second and third quarters 1987, but lower than fourth quarter 1987. Even though home prices traditionally have not greatly affected the affordability index, their importance has grown during the past year. Price increases on new homes were greater than gains in household income each quarter of 1987, though prices increased less than income during first quarter 1988. Resale home prices fell during the last two quarters, further improving resale affordability.

NATIONAL AFFORDABILITY

The affordability of homes also improved nationally during the first quarter, though both the level of affordability and the amount of improvement were less than in the Phoenix area. New home affordability rose from 78 to 86; the affordability of resale homes improved from 103 to 106.

Both median home prices and their rates of increase were considerably different nationally than in the Phoenix area. From first quarter 1987 to first quarter 1988, resale homes increased from $84,300 to $88,200, almost 5 percent. Phoenix area resales rose only 2 percent, falling the last two quarters to end at $76,500.

Despite falling during first quarter 1988, new home prices increased 11 percent nationally during the year, from $97,900 to $109,000. Phoenix area new home prices rose each quarter, ending at $103,450 during first quarter 1988, an annual increase of 12 percent.

OUTLOOK

Mortgage rates should once again provide the key to affordability. Interest rates are currently experiencing upward pressure, but the AREC does not expect them to climb much above 11 percent during 1988.

Local new home price gains lost momentum during the first quarter; prices probably will not rise much during the next few months unless demand for new homes increases unexpectedly.

Resale home prices fell 4 percent between third quarter 1987 and first quarter 1988, further widening the spread in affordability between new and resale homes. Prices probably will not continue falling in the resale market unless market conditions become worse than expected. With little change expected in either new or resale home prices, affordability should drop just slightly, due to somewhat higher interest rates.

– **Sharla Klvett,** *Research Analyst*
Arizona Real Estate Center

The data used to calculate the home prices for the Phoenix area comes from a new data source, inconsistent with our prior series (see Home Sales, p.4). The new series provides a more accurate breakdown between new home sales and resales. By counting some new homes as resale homes, the previous series overstated the median price of resale homes, while understating the price of new homes. The new, lower median price of resale homes raises their affordability index, while the higher new home price lowers new home affordability. If you have any questions, please write the Arizona Real Estate Center, College of Business, Arizona State University, Tempe Az. 85287 or call (602) 965-5440.

TABLE 2
HOUSING AFFORDABILITY INDEXES
Metropolitan Phoenix; Single-family Only

			Resale Homes			New Homes		
Quarter	*Median Gross Monthly Income*	*Effective Interest Rate*	*Median Sales Price*	*Monthly Housing Payment*	*Affordability Index*	*Median Sales Price*	*Monthly Housing Payment*	*Affordability Index*
1st 1987	$2,920	9.4%	$75,000	$630	130	$92,050	$770	106
2nd 1987	2,970	10.6	77,500	710	116	94,650	870	95
3rd 1987	3,020	10.8	79,700	750	113	100,200	940	90
4th 1987	3,080	11.3	77,500	760	114	102,400	1,000	86
1st 1988	$3,130	10.7%	$76,500	$710	123	$103,450	$960	91

Source: Arizona Real Estate Center, College of Business, Arizona State University. Interest rates are from the Federal Home Loan Bank Board *News.*

Construction Activity Slows During First Quarter

With $1 billion in permitted activity (20,498 permits), the Arizona construction industry reported its lowest quarterly value of building permits since third quarter 1983 ($906 million). In contrast, building permits valued at $1.1 billion (19,852 permits) were issued during the fourth quarter while construction activity totaled $1.2 billion (24,041 permits) during first quarter 1987. As shown in Table 1, some key sectors showed improvement over the fourth quarter but were below their respective levels of first quarter 1987.

While no single sector dominated construction activity, Pima and Maricopa Counties together accounted for 85 percent of the recorded activity. Maricopa County represented 71 percent of the total activity, with 12,340 permits worth $723 million. With 14 percent of the total, Pima County recorded 2,811 permits valued at $137 million.

More than 80 percent of the total construction activity occurred in the 12 reporting areas listed in Table 2. Of these 12 areas, only Peoria ($35 to $54 million) and unincorporated Yavapai County ($12 to $22 million) reported increased activity from a year ago. Other non-metropolitan communities recorded improvement compared to first quarter 1987: Flagstaff ($7.6 to $9.8 million), Lake Havasu City ($10.8 to $12.5 million), Bullhead City ($4.1 to $6.8 million), Prescott ($7.8 to $10.5 million) and Yuma ($3.9 to $9.5 million).

SECTORAL ACTIVITY

Residential

Even though mortgage interest rates declined during the first quarter (10.8 to 10 percent), they remained well above the 9 percent level evident in the first few months of 1987. Single-family permits in Maricopa County fell 28 percent from a year ago (5,242 to 3,783 permits) but were up 23 percent over the fourth quarter (3,081 permits). In comparison to a year ago, only Gilbert experienced an increase (237 to 290 permits), while unincorporated Maricopa County recorded a 47 percent decrease from 1,134 permits to 597 permits. A similar pattern prevailed in Scottsdale (437 to 229 permits).

The number of new single-family homes authorized in Pima County (811) barely exceeded the fourth quarter figure (758) and was well below the 1,132 permits recorded a year ago. Over 60 percent (508) of the issued permits were in unincorporated Pima County with only 22 percent (180) being within Tucson. Oro Valley became an active residential area with 120 permits, in comparison to 26 a year ago and 67 in the fourth quarter. Other areas reporting improvement over last year were Flagstaff (63 to 89 permits), Lake Havasu City (120 to 152 permits) and Prescott (56 to 104 permits).

Commercial

As expected, the apartment sector in Maricopa County slowed, with only 629 units authorized (see Table 3), the lowest level since fourth quarter 1981 (607 units). Permit activity was not consistent with nearly all of the permits being issued in March in Phoenix and Scottsdale.

In contrast to Maricopa County, apartment activity in Pima County showed improvement over the fourth quarter (6 to 1,037 units). The predominant areas of activity were Tucson (611 units) and Oro Valley (240 units). In the rest of Arizona, only Globe (40 units) and Bullhead City (24 units) authorized more than a few apartment units.

The value of office building permits has steadily decreased in Maricopa County from $165 million in the second quarter of last year to only $26 million (47 permits) in first quarter 1988. Most of the first quarter activity was in Phoenix ($19 million) followed by Scottsdale ($4 mil-

TABLE 1
KEY SECTOR CONSTRUCTION ACTIVITY
(First Quarter 1988, Fourth Quarter 1987, and First Quarter 1987)

			COMMERCIAL							
	SINGLE FAMILY		APARTMENTS[a]		OFFICE BUILDINGS[b]		RETAIL STORES[c]		INDUSTRIAL	
	Number of Permits	*Dollar Value (000)*	*Number of Units*	*Dollar Value (000)*	*Number of Permits*	*Dollar Value (000)*	*Number of Permits*	*Dollar Value (000)*	*Number of Permits*	*Dollar Value (000)*
Maricopa County										
First Quarter, 1988	3,783	353,309	629	29,546	47	25,772	178	70,649	41	16,111
Fourth Quarter, 1987	3,081	343,503	2,513	118,815	68	39,617	145	33,836	27	10,078
First Quarter, 1987	5,242	430,044	1,778	63,779	70	86,940	216	73,363	47	30,512
Pima County										
First Quarter, 1988	811	58,068	1,037	32,566	34	3,627	14	4,372	3	601
Fourth Quarter, 1987	758	54,952	6	237	15	3,182	14	2,058	3	106
First Quarter, 1987	1,132	73,017	822	19,717	17	14,172	27	16,615	6	1,157
Rest of Arizona										
First Quarter, 1988	1,168	73,069	79	2,805	31	5,838	68	14,314	11	11,222
Fourth Quarter, 1987	1,076	69,437	128	3,727	22	1,698	41	3,994	8	769
First Quarter, 1987	1,178	69,650	186	17,673	19	1,510	69	11,931	23	3,971
Arizona Total										
First Quarter, 1988	5,762	484,446	1,745	64,917	112	35,237	260	89,335	55	27,934
Fourth Quarter, 1987	4,915	467,892	2,647	122,779	105	44,497	200	39,888	38	10,953
First Quarter, 1987	7,552	572,711	2,786	87,993	106	102,622	312	101,909	76	35,640

[a] Five or more housing units
[b] Office, bank, medical and professional buildings
[c] Shopping centers and other mercantile buildings

Source: Arizona Real Estate Center and Center for Business Research, College of Business, Arizona State University

lion) and Mesa ($2 million). In Pima County, the $3.6 million in office building permits was fairly evenly split between Tucson ($1.9 million) and the unincorporated area ($1.7 million). In the rest of Arizona, office building activity increased to nearly $6 million with the leading area being Flagstaff ($3 million).

As shown in Table 1, the retail sector in Maricopa County posted a strong increase with Phoenix ($31 million) and Scottsdale ($15 million) being the primary areas of development. Tucson was the location of $3.4 million of the $4.4 million in retail building permits in Pima County. When development in the metropolitan counties slows, it frequently increases in the non-metropolitan areas. This pattern was apparent in the first quarter, led by retail development in Casa Grande ($4 million) and unincorporated Pinal County ($4 million).

The hotel/motel sector followed the pattern of other commercial sectors with improved activity over the fourth quarter ($10 to $14 million), but values remained well below the level of a year ago ($36 million).

Industrial

Industrial building permits worth $16 million were authorized in Maricopa County, slight improvement over the $10 million issued in the fourth quarter but well below the $31 million recorded a year ago. Phoenix ($8 million) and Tempe ($6 million) continued to be the primary areas for industrial construction.

In Pima County, industrial development continued below the $1 million level (see Table 4). This sector in the non-metropolitan areas frequently is greatly affected by a few large projects, as was especially evident during the first quarter. One industrial permit, valued at $7 million, was issued in unincorporated Yavapai and 4 permits, worth $3 million, were recorded in Yuma.

Other

This sector encompasses diverse areas such as educational facilities, religious buildings and health care facilities. Construction of new schools continued at a strong pace with a total of $23 million permitted, primarily in Maricopa County ($18 million). Most of the $30 million in new health care facilities was permitted in the metropolitan areas of Peoria (2 permits for $24 million) and unincorporated Pima County (5 permits for $3 million).

LOOKING AHEAD

The slowdown in construction activity was not unexpected. The decline was in response to reduced economic and population growth and excess supply in most sectors and areas. Construction activity has simply outpaced the growth of the economy and now must slow down to await a more positive economic environment.

Although less new home construction occurred during the first quarter, activity improved throughout the quarter. However, mortgage interest rates have started to increase (9.8 percent in March to 10.2 percent in April) and could again post an obstacle to further improve-

TABLE 2
REPORTING UNITS WITH GREATEST TOTAL VALUE OF BUILDING PERMITS
First Quarter, 1988

Reporting Unit	Value *(In millions)*
Phoenix	$249
Scottsdale	124
Mesa	69
Unincorporated Maricopa County	62
Unincorporated Pima County	60
Tucson	57
Peoria	54
Tempe	42
Glendale	41
Chandler	30
Gilbert	30
Unincorporated Yavapai County	22

Source: Arizona Real Estate Center and Center for Business Research, College of Business, Arizona State University

TABLE 3
ARIZONA HOUSING UNITS AUTHORIZED
First Quarter 1988

	One Family	*Mobile Homes*	*Duplex*	*3-4 Family*	*5 or More*	*Total*
APACHE COUNTY	8	6	0	0	0	14
Percent Change, Previous Year	−33	−50	—	—	—	−42
Percent Change, Previous Qtr.	−11	−45	—	—	—	−30
COCHISE COUNTY	69	18	0	0	0	87
Percent Change, Previous Year	−42	−74	—	—	—	−55
Percent Change, Previous Qtr.	−22	−53	—	—	—	−31
COCONINO COUNTY	142	54	6	3	0	205
Percent Change, Previous Year	13	−7	—	—	—	11
Percent Change, Previous Qtr.	5	−35	−67	−25	—	−36
GILA COUNTY	60	48	0	0	40	148
Percent Change, Previous Year	−13	0	—	—	—	26
Percent Change, Previous Qtr.	20	17	—	—	—	63
GRAHAM COUNTY	18	56	0	0	0	74
Percent Change, Previous Year	29	37	—	—	—	−17
Percent Change, Previous Qtr.	20	12	—	—	—	14
GREENLEE COUNTY	1	0	0	0	0	1
Percent Change, Previous Year	—	—	—	—	—	—
Percent Change, Previous Qtr.	—	—	—	—	—	—
LA PAZ COUNTY	8	52	0	0	0	60
Percent Change, Previous Year	0	−12	—	—	—	−10
Percent Change, Previous Qtr.	300	44	—	—	—	58
MARICOPA COUNTY	3,783	351	32	19	629	4,814
Percent Change, Previous Year	−28	−23	−20	−80	−65	−37
Percent Change, Previous Qtr.	23	−20	300	−53	−75	−21
MOHAVE COUNTY	302	319	6	3	30	660
Percent Change, Previous Year	5	4	—	0	−3	5
Percent Change, Previous Qtr.	6	−36	0	—	—	−17
NAVAJO COUNTY	45	36	0	0	0	81
Percent Change, Previous Year	−4	71	—	—	—	7
Percent Change, Previous Qtr.	−29	−44	—	—	—	−36
PIMA COUNTY	811	18	8	6	1,037	1,880
Percent Change, Previous Year	−28	−89	−80	−63	26	−14
Percent Change, Previous Qtr.	7	−14	0	−54	17,183	133
PINAL COUNTY	86	137	0	0	0	223
Percent Change, Previous Year	−9	27	—	—	—	4
Percent Change, Previous Qtr.	6	32	—	—	—	−9
SANTA CRUZ COUNTY	35	105	0	3	0	143
Percent Change, Previous Year	−3	3,400	—	−57	—	211
Percent Change, Previous Qtr.	13	−72	—	−25	—	−65
YAVAPAI COUNTY	312	114	4	9	9	448
Percent Change, Previous Year	22	−15	−71	−75	−86	−11
Percent Change, Previous Qtr.	42	−54	−50	13	—	−7
YUMA COUNTY	82	184	0	0	0	266
Percent Change, Previous Year	−25	26	—	—	—	−13
Percent Change, Previous Qtr.	−14	17	—	—	—	3
TOTAL, ARIZONA	5,762	1,498	56	43	1,745	9,104
Percent Change, Previous Year	−24	−8	−40	−75	−37	−26
Percent Change, Previous Qtr.	17	−31	12	−48	−34	−8

Note: A dash indicates that a percent change could not be calculated because at least one period had no activity.

Source: Arizona Real Estate Center and Center for Business Research, College of Business, Arizona State University

ment in single-family home construction.

The fundamental factors that will affect all aspects of the construction industry are the current and expected performance of the Arizona economy and respective market conditions for each of the construction sectors. No major economic forces are apparent that would stimulate activity to much higher levels. There are, however, two factors which could affect the level of activity in coming quarters. The first is built on expectations of the return of faster economic and population growth, especially in Maricopa County. Some major retail and office building projects could be permitted in coming months, creating some temporary upswings in recorded activity. These projects will not be completed for one-to-two years when the market is expected to be better. The second factor is that development typically improves in the nonmetropolitan areas as it slows in the metropolitan counties. This pattern, especially evident in retail sectors, probably will become more prevalent in the multifamily sector as well.

Construction activity in the first quarter demonstrated some maturity on the part of the industry as it responded to limited economic and market potential. Construction activity probably will continue to be slow during the year as developers examine where the real strength and demands of the Arizona real estate market lie.

– Jay Q. Butler

Dr. Butler is Associate Professor of Real Estate and Director of the Arizona Real Estate Center in the ASU College of Business.

TABLE 4
ARIZONA BUILDING PERMITS
First Quarter 1988

	Residential*		Commercial		Industrial		Other		Total	
	Number of Permits	*Dollar Value (000)*	*Number of Permits*	*Dollar Value (000)*	*Number of Permits*	*Dollar Value (000)*	*Number of Permits*	*Dollar Value (000)*	*Number of Permits*	*Dollar Value (000)*
APACHE COUNTY	25	586	5	178	0	0	1	19	31	783
Percent Change, Previous Year	–7	–25	400	–29	—	—	–75	27	–3	–25
Percent Change, Previous Qtr.	–4	–27	0	–33	—	—	—	—	0	–27
COCHISE COUNTY	217	4,346	11	278	0	0	166	456	394	5,080
Percent Change, Previous Year	–35	–41	–60	–88	—	—	–13	–85	–28	–54
Percent Change, Previous Qtr.	–17	–20	–39	–31	—	—	4	–41	–10	–23
COCONINO COUNTY	306	10,611	30	4,125	2	426	115	1,288	456	16,450
Percent Change, Previous Year	17	–2	–15	154	100	1,274	19	–4	15	19
Percent Change, Previous Qtr.	–23	–26	–27	–2	100	985	–22	–82	–23	–37
GILA COUNTY	185	5,153	16	1,993	0	0	33	381	234	7,527
Percent Change, Previous Year	–10	–2	–52	–35	—	—	–23	220	–18	–12
Percent Change, Previous Qtr.	13	26	129	1,169	—	—	18	27	18	65
GRAHAM COUNTY	120	2,163	9	50	0	0	17	66	146	2,266
Percent Change, Previous Year	14	39	–25	–96	—	—	113	313	16	–18
Percent Change, Previous Qtr.	–2	9	13	–92	—	—	–23	–85	–4	–11
GREENLEE COUNTY	1	70	0	0	0	0	0	0	1	70
Percent Change, Previous Year	0	—	—	—	—	—	—	—	0	—
Percent Change, Previous Qtr.	—	—	—	—	—	—	—	—	—	—
LA PAZ COUNTY	109	1,479	5	117	0	0	45	66	159	1,662
Percent Change, Previous Year	–16	–4	–58	–75	—	—	5	–49	–14	–22
Percent Change, Previous Qtr.	–12	96	–17	38	—	—	88	–18	3	80
MARICOPA COUNTY	6,224	373,580	500	171,169	41	18,111	5,575	162,306	12,340	723,166
Percent Change, Previous Year	–26	–17	–17	–40	–13	–47	–11	25	–20	–19
Percent Change, Previous Qtr.	15	3	–18	–33	52	60	8	9	10	–7
MOHAVE COUNTY	1,018	25,568	31	2,593	1	72	339	3,692	1,389	31,925
Percent Change, Previous Year	7	15	–26	2	–88	–97	16	49	7	6
Percent Change, Previous Qtr.	–4	9	24	–3	0	–5	18	29	1	10
NAVAJO COUNTY	175	4,190	14	906	0	0	53	88	242	5,184
Percent Change, Previous Year	51	20	27	4	—	—	279	–16	72	16
Percent Change, Previous Qtr.	–13	2	17	–6	—	—	141	529	3	2
PIMA COUNTY	1,541	63,054	118	42,053	3	601	1,149	30,919	2,811	136,627
Percent Change, Previous Year	–21	–21	16	–19	–50	–48	–25	5	–22	–15
Percent Change, Previous Qtr.	7	7	39	183	0	467	–15	–42	–2	6
PINAL COUNTY	338	8,669	49	11,972	0	0	168	1,499	555	22,140
Percent Change, Previous Year	3	2	40	981	—	—	–7	52	2	104
Percent Change, Previous Qtr.	22	16	7	212	—	—	–28	–66	0	37
SANTA CRUZ COUNTY	146	2,091	3	218	0	0	9	82	158	2,391
Percent Change, Previous Year	256	10	–50	–22	—	—	200	64	216	7
Percent Change, Previous Qtr.	–65	25	0	61	—	—	0	–62	–63	18
YAVAPAI COUNTY	670	23,465	49	4,528	4	7,251	214	3,087	937	38,331
Percent Change, Previous Year	21	21	–4	–51	33	4,116	5	53	16	25
Percent Change, Previous Qtr.	–4	27	206	280	100	3,819	–13	–83	–3	0
YUMA COUNTY	382	10,239	22	2,167	4	3,473	237	1,639	645	17,518
Percent Change, Previous Year	–2	–4	47	17	33	2,820	–7	0	–3	22
Percent Change, Previous Qtr.	–5	2	–33	–63	33	6,988	19	–33	1	2
TOTAL, ARIZONA	11,457	535,254	865	242,365	55	27,934	8,121	205,590	20,498	1,011,143
Percent Change, Previous Year	–17	–14	–12	–33	–29	–22	–11	21	–15	–15
Percent Change, Previous Qtr.	4	4	–6	–16	45	155	3	–14	3	–4

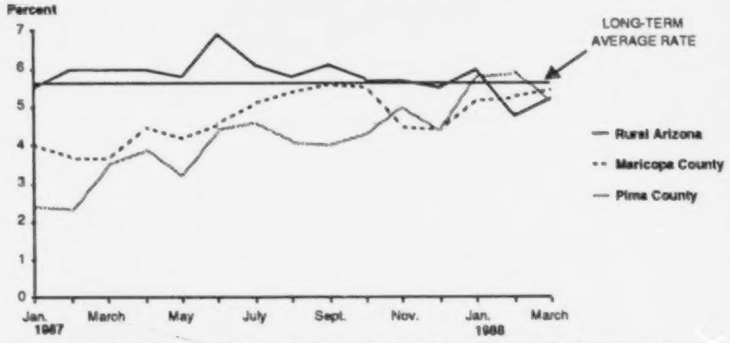
*Includes mobile homes

Note: A dash indicates that a percent change could not be calculated because at least one period had no activity.

Source: Arizona Real Estate Center and Center for Business Research, College of Business, Arizona State University

Coincident Indexes Rise in March

FIGURE I
COINCIDENT ECONOMIC INDEXES
Year-to-Year Percent Changes



Source: Center for Business Research, College of Business, Arizona State University

Economic growth during March ranged from slightly faster than average in Maricopa County to somewhat slower than normal in Pima County. During the first three months of 1988, the Phoenix area outpaced the rest of the state, but the rate of economic growth minimally exceeded the long-term average throughout Arizona. This rapid expansion in the Phoenix area merely offset very slow growth during late 1987.

The coincident economic index for the Phoenix area rose 0.8 percent in March to a record 144.2 (1982 = 100). The gain in non-urban Arizona matched the long-term average of 0.5 percent, placing its index at a high of 133.1. The coincident index for the Tucson area advanced 0.3 percent to a record 139.5.

The Phoenix area index rose the most in March as the value of commercial building permits jumped from the depressed level of the preceding four months and retail sales, employment and the unemployment rate all improved modestly. In the Tucson area, the index gained less because the value of building permits did not climb as much as in Phoenix, employment declined slightly, and the unemployment rate was unchanged. While the unemployment rate in rural Arizona fell substantially, each of the other components were essentially flat.

In the 12 months ending in March, economic growth throughout the state was near average (see Figure I). Barely subpar growth likely will continue for at least several more months, as indicated by the leading index,which remains nearly unchanged. The construction industry likely will decline further; the manufacturing industry has not yet shown any sign of improvement.

The composite statewide measure climbed 0.6 percent in March to a record 141.3.

– Tom R. Rex
Research Manager

Further Growth Foreseen from May Purchasing Indicators

TABLE 1
MAY PURCHASING SURVEY

Key Indicators	Percent of Purchasing Managers Indicating Each Response (May compared to April)		
	Higher	*Same*	*Lower*
Prices paid for major commodities	50	47	3
Delivery time from vendors	39	58	3
Purchased materials inventory level	26	45	29
New orders received	40	33	27
Production	38	48	14
Employment	28	61	11
Purchases	41	33	26

Source: Purchasing Management Association of Arizona and the Purchasing Management Association of Southern Arizona

The expansion continues to roll along, although the overall rate of increase in May was somewhat lower than in April, according to the monthly survey of purchasing managers. New order receipts grew at a slower rate, but output continued to expand at a strong pace and the employment increase was the largest in close to a year. Prices also registered a strong upward move, although the overall rate of increase in May was somewhat lower than in April.

New orders, production, and employment should continue to move up, fueled by continued strong consumer and business demand. Inventory levels probably will remain moderate, since firms will have difficulty obtaining items in larger quantities than needed to support their immediate needs. Inventory levels of purchased materials dropped in May for the first time in nearly a year, probably due to the inability of firms to replenish their stocks as rapidly as they are being consumed.

The combination of higher output and employment likely will create strains on resource availability. This could generate heightened inflationary forces that inevitably would start to put the brakes on the long-running economic expansion. All of the monthly increases in the first five months of 1988 were greater than in any of the months of 1987, showing that inflationary pressures are mounting and could become a serious problem in the latter half of the year.

– Harold Fearon

Dr. Fearon is the National Association of Purchasing Management Professor in the ASU College of Business.

GSP Growth Slumps in 1987

The Arizona Gross State Product expanded only 4.6 percent during 1987, the slowest inflation-adjusted growth since 1982. Not since the mid-1960s has GSP grown slower in a non-recessionary year than the 5.6 percent long-term average. Adjusted GSP, which excludes the volatile mining and agriculture industries, expanded faster than GSP in each year between 1983 and 1986, but rose only 4.1 percent in 1987 (see Table 1).

During 1987, the current expansion became the longest ever during peacetime. By the end of the year, however, total growth (43 percent) had not matched the 44 percent of the 1975-80 expansion. Weakness in agriculture and mining during the 1980s held down overall growth; adjusted GSP growth set a peacetime record, rising 48 percent, compared to 42 percent in the late 1970s.

The Arizona economy slowed sharply in 1987 while national economic growth accelerated (see Table 2). At the end of the year, annual growth of adjusted GSP did not exceed that of Gross National Product, a rare occurrence. Except during recessions, the Arizona economy generally expands at least twice as fast as the national economy.

SECTORAL GROWTH AND SHARES

GSP before inflation-adjustment totaled $57 billion in 1987. The finance, insurance and real estate (FIRE) industry continued as Arizona's largest (see Figure I), widening its margin over services and trade. These three industries accounted for more than one-half of GSP.

While growth in most industries slowed during 1987, worsening conditions in the construction and manufacturing industries were most responsible for the overall deceleration. Much improved conditions in the agriculture industry largely offset slower growth in trade, services and government (see Figure II).

Conditions varied substantially by industry. Construction entered a recession after posting little growth in 1986; mining's gross product declined for the third straight year and for the fifth time in the last six years. In contrast, FIRE's growth rate accelerated slightly to a strong 9 percent.

DEFLATORS

Inflation measured by the Arizona GSP deflator nearly doubled from 1986 to 1987, swinging from less to

TABLE 1
ANNUAL ECONOMIC GROWTH

	Arizona Gross State Product [r]				Gross National Product
Annual	*Billions of Current Dollars*	*Billions of 1982 Dollars*	*Percent Change (1982 Dollars)*	*Percent Change (Adjusted GSP)**	*Percent Change (1982 Dollars)*
1982	34.266	34.254	–3.2	–1.9	–2.5
1983	37.789	36.218	5.7	7.9	3.6
1984	43.205	40.001	10.4	10.7	6.8
1985	48.049	43.047	7.6	8.5	3.0
1986	52.455	46.030	6.9	7.3	2.9
1987	57.027	48.155	4.6	4.1	2.9

*The adjusted GSP is the GSP in billions of 1982 dollars, minus the contributions of the agriculture and mining industries.

[r] Revised

TABLE 2
QUARTERLY ECONOMIC GROWTH

	Arizona Gross State Product				Gross National Product
Quarter	*Billions of Current Dollars, Annualized*	*Quarterly Percent Change (1982 Dollars)*	*Quarterly Percent Change (Adjusted GSP)**	*Annual Percent Change (Adjusted GSP)**	*Annual Percent Change (1982 Dollars)*
First 1986	51.694	3.1	2.9	8.3	3.6
Second 1986	52.059	0.9	1.1	7.8	3.3
Third 1986	52.573	0.4	0.8	6.4	2.6
Fourth 1986	53.496	2.0	2.1	6.9	2.2
First 1987	55.468	0.4	–0.4	3.6	2.0
Second 1987	56.790	2.2	1.8	4.3	2.4
Third 1987	57.793	1.1	1.1	4.7	3.2
Fourth 1987	58.055	–0.1	1.4	4.0	4.0

*The adjusted GSP is the annualized GSP in billions of 1982 dollars, minus the contributions of the agriculture and mining industries.

[r] Revised

Source (Tables 1 and 2): Center for Business Research, College of Business, Arizona State University. GNP data are from the U.S. Department of Commerce, Bureau of Economic Analysis.

more than the national average. The acceleration to nearly 4 percent resulted primarily from agricultural and copper prices rising after years of decline. Most of the increase in copper prices occurred in the fourth quarter, when the deflator registered its biggest increase since 1981.

EMPLOYMENT AND PRODUCTIVITY

Employment growth continued to slow from the 1984 peak, managing only a 3.5 percent increase in 1987. The deceleration was not as great as for GSP, which was affected not only by the employment situation but by a small increase in real output per employee. In 1986, output per employee advanced a strong 2.0 percent, with gains in most sectors, including a very large increase in manufacturing. Output per employee rose only 0.3 percent in 1987, with gains in only three sectors (see Figure III).

Though output per employee advanced 4.7 percent between the 1982 recession and 1987, it failed to attain the peak level of the early 1970s. In contrast, gains in the manufacturing industry exceeded 33 percent between 1982 and 1987, following a decade of virtually no change.

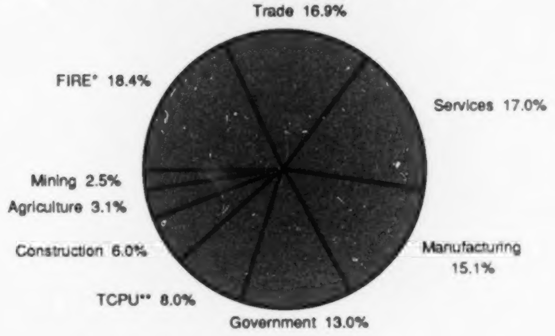
OUTLOOK

The Arizona economy is experiencing in 1988 its second straight subpar, but non-recessionary, year. Quarterly GSP growth is likely to be similar to that of 1987, but the 1988 annual average will be less, since it is starting the year from a lower growth rate. Annual growth may be less than 4 percent, barely exceeding the national average.

Other than the recession years of 1975 and 1982, the Arizona economy has outperformed the national economy in every year since the mid-1960s. Conditions in 1987-88, however, are similar to those in 1963-65, when the Arizona economy grew at below average rates, slower than the national economy. The key factor is that the Arizona construction industry is in decline while the rest of the local economy and the national construction industry are expanding.

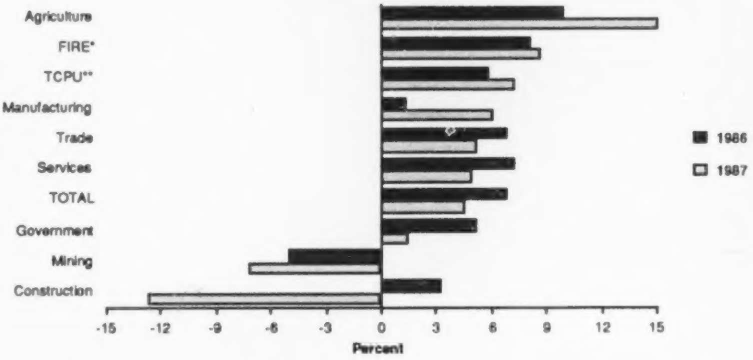
– Tom R. Rex
Research Manager

FIGURE I
ARIZONA GROSS STATE PRODUCT
1987 Sectoral Shares, In Current Dollars



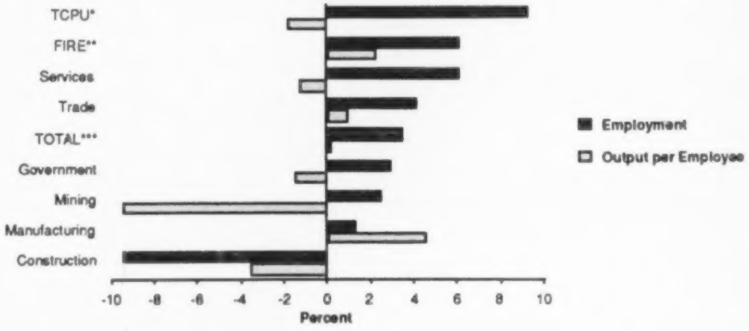
*Finance, Insurance, and Real Estate
**Transportation, Communications and Public Utilities

FIGURE II
REAL GSP GROWTH
By Sector, 1986-1987



*Finance, Insurance, and Real Estate
**Transportation, Communications and Public Utilities

FIGURE III
GROWTH OF EMPLOYMENT AND REAL OUTPUT PER EMPLOYEE
By Sector, 1987



*Finance, Insurance, and Real Estate
**Transportation, Communications and Public Utilities
***Excluding Agriculture

Source (Figures I, II and III): Center for Business Research, College of Business, Arizona State University

ARIZONA ECONOMIC INDICATORS

	Month or Quarter	*Value*	*Percent Change from Previous Period*	*Percent Change from Year Ago*	**Year-to-Date** *Value*	**Year-to-Date** *Percent Change from Year Ago*
GROSS STATE PRODUCT						
(In Billions of Dollars, at Annual Rate)						
Arizona - Current Dollars	4th Qtr.	58.055	0.5	8.5	NA	NA
Arizona - 1982 Dollars	4th Qtr.	48.035	−1.2	3.5	NA	NA
COINCIDENT ECONOMIC INDEXES						
(1982 = 100)						
Arizona	March	141.3	0.6	5.4	NA	NA
Metropolitan Phoenix	March	144.2	0.8	5.5	NA	NA
Metropolitan Tucson	March	139.5	0.3	5.1	NA	NA
Non-urban Arizona	March	133.1	0.5	5.3	NA	NA
CONSUMER PRICE INDEX (1982-84 = 100)						
Metropolitan Phoenix	1st Qtr.	117.4	0.7	3.1	NA	NA
INDEX OF LEADING ECONOMIC INDICATORS (1977 = 100)						
Arizona	April	110.7	0.0	0.3	NA	NA
BUILDING PERMITS						
(Total Dollar Value in Thousands)						
Maricopa County	April	320,678	7	−21	1,043,864	−19
Pima County	April	44,111	−36	−26	180,738	−18
Balance of State	April	43,108	−41	−23	194,438	3
Arizona	April	407,897	−7	−22	1,419,040	−17
TOTAL HOUSING UNITS AUTHORIZED						
Maricopa County	April	2,340	1	−1	7,154	−28
Pima County	April	465	−59	−26	2,345	−16
Balance of State	April	624	−29	−21	3,034	−6
Arizona	April	3,429	−20	−9	12,533	−21
HOME SALES						
Maricopa County - Number	April	4,450	37	14	14,860	−23
Maricopa County - Median Price	April	79,000	0	1.1	79,700	1.4
HOUSING AFFORDABILITY INDEXES						
Metropolitan Phoenix - New Homes	1st Qtr.	91	5.8	−14.2	NA	NA
Metropolitan Phoenix - Resale Homes	1st Qtr.	123	7.9	−5.4	NA	NA
MORTGAGE INTEREST RATES						
(Conventional, 30-year, Fixed-rate)						
Maricopa County	May	10.4	2.0	−1.0	NA	NA
POPULATION ESTIMATES						
(In Thousands)						
Maricopa County	1st Qtr.	2,006	0.7	2.4	NA	NA
Arizona	1st Qtr.	3,463	0.6	2.2	NA	NA
ELECTRICAL POWER SALES						
(In Millions of Kilowatt Hours)						
Arizona	March	3,110	7.3	2.6	9,341	6.4

NA = Not Applicable

Source: Center for Business Research, College of Business, Arizona State University

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Ability to Pay is the Critical Question

Arizona Sales Taxes and Regressivity

Most economists would argue that "equitable" tax systems should be based on the "ability-to-pay principle." Some would argue that regressive taxes violate this principle since, by definition, tax burdens do not increase as fast as income. Hence the poor generally pay less tax than the rich, but their tax burden is a larger proportion of their income. The problem with this notion is that income does not always accurately reflect ability to pay.

A recent study, "Estimated Individual Tax Burdens," produced by the Arizona Tax Research Association (ATRA), finds that the tax rate paid by individuals with an average gross income of $12,500 is 1.7 times higher than that paid by people with an average gross income of $66,000. Relying on a definition of regressivity that compares tax burden with gross income, the ATRA study suggests that, like many types of consumption-based taxes, sales taxes in Arizona are regressive. This article reconsiders the question of regressivity by adding an additional source of sales tax revenue, and using a substitute for gross income designed to be more closely related to ability to pay. Findings suggest that the existing sales tax code is nearly proportional when ability to pay, rather than gross income, is used to compare relative sales tax burdens.

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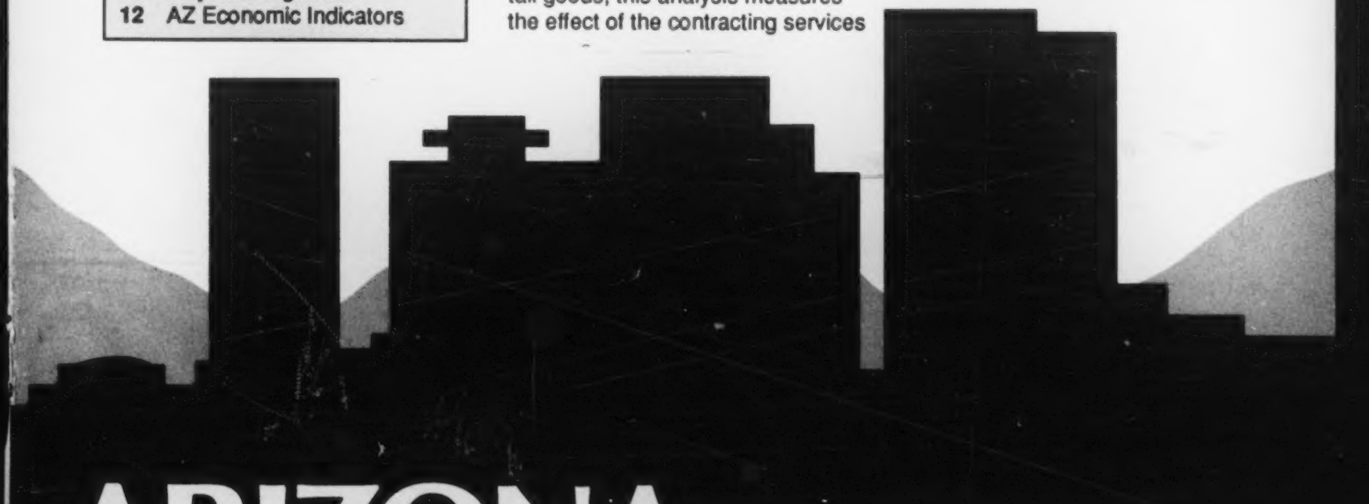
RESIDENTIAL CONSTRUCTION TAX

In addition to the sales tax on retail goods, this analysis measures the effect of the contracting services tax, which directly affects higher income homeowners more than lower income renters. While it is impossible to measure the incidence of 100 percent of the contracting tax, the taxes paid by the purchasers of newly constructed residential housing can be tracked with a reasonable degree of accuracy.

The "new residential housing" sales tax burden estimates are obtained by first tabulating the number and value of new home sales in 1986. (To be consistent with the latest Consumer Expenditures Survey results from the U.S. Department of Labor that are used throughout this analysis, data for 1986 were used). New home sales were apportioned to various income groups using survey data contained in the 1986 edition of *Inside Phoenix*. Sales activity in the Phoenix and Tucson metropolitan areas was separated from the limited number of sales that took place in other localities to capture



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price differentials that exist across the state. Also, not only do individuals in higher income groups buy proportionately more homes, they naturally buy homes at the higher end of the price distribution. A summary of these numbers by income distribution along with estimated sales tax burdens for the purchasers of new homes is shown in Table 1. The highest income earners pay considerably more than those in the low income categories.

The new residential housing analysis is combined with estimates of sales tax burdens in Table 2. The latter two columns contain the "residential construction tax" burden paid on an individual basis. This is obtained by first estimating the number of consumer units in each income category and dividing the total taxes paid in each group among *all* consumer units in each income category. Including the construction tax mitigates the estimate of regressivity somewhat so that the taxes paid by the $12,500 income group are 1.4 times higher than those paid by the highest income group rather than 1.7 times higher as observed by ATRA. However, considerable regressivity still is observed if gross income is used to compare relative sales tax burdens.

REGRESSIVITY AND THE ABILITY TO PAY

Gross income is not the best measure of an individual's ability to pay. An alternative is to consider the sales tax burden as a percent of *total* expenditures reported in the 1986 BLS consumer survey. Individuals who reported gross (before tax) incomes less than $10,000 (an average of $6,250) also reported expenditures that averaged well *over* $11,000 while average gross incomes of $12,500 supported *more than* $15,000 in expenditures – suggesting considerable wealth or credit availability in these income groups. (For example, some elderly receive little income, but have considerable savings.) Results suggest that despite observed gross income regressivity, individuals with high incomes are *not* able to tailor expenditures to avoid tax incidence.

TABLE 1
RESIDENTIAL CONSTRUCTION SALES TAX

Gross Income	Distribution of New Home Sales[1]	Total Expenditures on New Homes, In Millions[2]	Sales Taxes Assessed, In Millions[2]
Less than $10,000	0%	$ 0	$ 0
$10,000-14,999	4	54.3	2.0
$15,000-19,000	7	122.6	4.5
$20,000-29,999	18	409.0	14.8
$30,000-39,999	24	718.8	26.1
$40,000 or more	47	1,871.0	67.7

TABLE 2
SALES TAX REGRESSIVITY BASED ON GROSS INCOME

	Excluding Residential Construction[3]		Including Residential Construction[3]	
*Gross Income**	*Sales Tax*	*Percent of Income*	*Sales Tax*	*Percent of Income*
$6,250	$380	6.1%	$380	6.1%
12,500	502	4.0	518	4.1
17,500	595	3.4	632	3.6
25,000	690	2.8	768	3.1
35,000	880	2.5	1,082	3.1
66,000	1,482	2.2	1,881	2.9

TABLE 3
SALES TAX REGRESSIVITY BASED ON ABILITY TO PAY

			Sales Tax as a Percent of Ability to Pay[4]	
*Gross Income**	*Disposable Income*	*Expenditures[4]*	*Excluding Residential Construction*	*Including Residential Construction*
$6,250	$6,000	$11,426	3.3%	3.3%
12,500	11,845	15,084	3.3	3.4
17,500	16,290	18,266	3.3	3.5
25,000	23,834	23,008	3.0	3.2
35,000	31,309	28,043	2.8	3.5
66,000	53,853	43,996	2.8	3.5

TABLE 4
SALES TAX REGRESSIVITY, INCLUDING A TAX ON FOOD BASED ON ABILITY TO PAY

				Sales Tax as a Percent of Ability to Pay	
*Gross Income**	*Estimated Food Expenses[4]*	*Food Sales Tax*	*Tax Less Credit*	*Excluding Construction*	*Including Construction*
$ 6,250	$1,600	$104	$ 0	3.3%	3.3%
12,500	1,930	125	0	3.3	3.4
17,500	2,072	135	0	3.3	3.5
25,000	2,284	148	100	3.3	3.6
35,000	2,736	178	178	3.4	4.0
66,000	3,397	221	221	3.2	3.9

*Average of income classes shown in Table 1.

[1] *Inside Phoenix 1986*, Phoenix Newspapers Inc.

[2] Arizona Real Estate Center, College of Business, Arizona State University

[3] Consumer unit distributions from Arizona Department of Revenue Tax Model, 1980 and summary population statistics, *1987 Arizona Statistical Review*, Valley National Bank.

[4] U.S. Department of Labor Consumer Expenditure Survey.

Source: Calculations by author.

From an entirely different perspective, most definitions of regressivity focus on tax burdens as a portion of disposable income. Disposable income is approximated by subtracting the ATRA estimates of Federal Income Tax burdens in Arizona from gross income.

Use of expenditures at the low income levels provides a better measure of ability-to-pay regressivity than either gross or disposable income because it is a better proxy for the sum of income and wealth. However, exclusive emphasis on expenditures at the higher income levels ignores the fact that the rich are able to avoid sales tax incidence by saving a portion of their income – thus they are really "able" to pay more. Hence, a more accurate definition of ability-to-pay regressivity can be obtained by using expenditures up to the point where income exceeds expenditures and using disposable income thereafter. Results that correspond to these definitions appear in Table 3. Slight ability-to-pay regressivity appears when the contracting tax is excluded but vanishes when the tax incidence of new residential contracting is also included.

REGRESSIVITY AND PROPOSED TAX CHANGES

The ATRA study examines whether several hypothetical changes in the existing sales tax code would lead to increased regressivity. Reinstitution of the sales tax on food at the state level is seen as a regressivity-inducing measure – resulting in a sales tax structure that leaves the relative tax burden on the poor some 1.9 (rather than 1.7) times greater than the burden borne by those in the highest gross income bracket. However, the ATRA study admittedly omits any low income credit from the analysis. Table 4 presents estimates of burdens that result from a reinstitution of the food tax *and* simultaneous low income credits to low income state residents. If 100 percent sales tax credits are provided to low income individuals, the food tax could be used to *actually mitigate* alleged regressivity in the existing sales tax structure. Such a system would be easy to institute and administer within the framework of the existing income tax structure.

A food tax, broad-based sales tax or a tax on business services makes especially good sense in a state like Arizona. These taxes provide the only mechanism whereby non-resident visitors can compensate the state for use of public services. The state of Florida has realized this potential revenue source and expanded its sales tax base accordingly. The sales tax allows states with a heavy influx of visitors to "export" its tax burden to non-residents who share in the benefits of state and local government expenditures. Any regressivities induced by increased sales taxes can easily be eliminated by providing for low income credits.

SUMMARY

A study recently produced by the Arizona Tax Research Association, which measures regressivity with respect to gross income, concludes that the sales tax structure in Arizona results in regressive tax burdens. However, use of gross income ignores wealth and the effect of other taxes (specifically the progressive federal income tax) and is not necessarily an accurate measure of the ability to pay. Indeed, after calculating the sales tax burden borne by the purchasers of new residential housing, total sales tax burdens as a proportion of the ability to pay are found to be virtually equal across all income levels.

The proposed food tax could actually be used to *mitigate alleged regressivity* if low income credits are instituted simultaneously. This proposal has the side benefit of exporting an additional portion of the sales tax burden to non-resident visitors to Arizona. It is also consistent with the sensible notion that heavily frequented tourist states such as Arizona and Florida should finance a substantial portion of their public expenditures by means of a broad-based sales tax. Sales taxes are the only direct conduit for non-resident visitors to compensate state and local governments for the public services they consume.

– **Dennis Hoffman**
Professor of Economics

Arizona Tax Capacity and Effort Near Average

The overall capacity to collect taxes in Arizona is nearly equal to the national average. The state's effort to match collections to capacity is only marginally below the national norm. These findings are derived from an analysis done each year by the Advisory Commission on Intergovernmental Relations (ACIR), a consortium of private citizens and public officials at local, state and federal levels.

State and local government revenues and expenditures were examined in the May issue of *Arizona Business*. This article extends the revenue analysis by taking into consideration the capacity to pay as well as a per capita comparison of collections. Changes to the tax structure are recommended in the conclusion.

PER CAPITA COLLECTIONS

Key revenue findings from the analysis in the May issue included the fact that Arizona's per capita revenues were well below the national average, but that tax collections were near the per capita norm, with the shortage being in federal intergovernmental revenues. Collections from specific taxes varied widely, with the general sales tax, selective sales tax on motor fuels, motor vehicle license tax and property tax being heavily exploited. In contrast, relatively little was collected from individual and corporate income taxes, other selective sales taxes, other license taxes and miscellaneous other sources.

TAX CAPACITY AND EFFORT

A more sophisticated analysis of tax capacity and tax effort yields somewhat different conclusions, however.

The ACIR defines tax capacity as the "dollar amount of revenue that each state would raise if it applied a nationally uniform set of tax rates to a common set of tax bases." For the general sales tax, for example, the tax base is the value of retail sales.

Tax effort is calculated by dividing the state's actual tax collections by its estimated tax capacity. It can be interpreted as "a measure of how much a state chooses to exploit all its potential tax bases relative to other states." A tax effort less than 100 indicates that more could be collected from that source before the tax burden would reach the national average.

The state's overall tax effort index was 97 in 1984-85, ranking 23rd (see Table 1). Approximately $160 million more taxes could have been collected before reaching the national average. The tax burden was particularly heavy on the general sales tax, in which tax revenue exceeded capacity by about $560 million; on the motor vehicle license tax ($43 million); and on the motor fuels sales tax ($23 million). The state's tax effort was particularly low on property taxes (capacity exceeded revenue by $480 million), the personal income tax ($210 million), and corporate license taxes ($36 million). A non-tax revenue source, user charges, could have been used to collect an additional $67 million before the revenue effort reached the national norm.

CONCLUSION

A comparative analysis of state tax systems suggests the following long-term changes in Arizona's tax structure:

- Raise more revenue from the personal income tax.
- Increase collections from the residential and non-residential property tax.
- Reduce the general sales tax rate on retail goods.
- Broaden the general sales tax to include food (with a rebate for low-income earners) and services. This extension of the tax would make it less cyclical, more progressive, and would spread the burden to non-residents.

Sources of smaller amounts of revenue that should be considered include raising selective sales taxes on alcohol and tobacco, creating a new tax on transfer of real estate, and increasing revenue from user charges and miscellaneous other sources, in part by "closing loopholes."

– **Tom R. Rex**
Research Manager

1987 TAX COLLECTIONS

State government tax collections in 1986-87 rose a little more than 8 percent both nationally and in Arizona, according to a just-released report by the U.S. Department of Commerce. Per capita collections in Arizona ($1,025) barely exceeded the national average ($1,018).

Collections from the general sales tax did not increase as much because consumer expenditures in Arizona have not been vigorous (see page 5). The tax rate on motor fuels increased January 1, 1987, resulting in a large increase in selective sales tax collections. Corporate income tax collections advanced strongly in 1986-87, but the state has reported much reduced flows in 1987-88. General property tax collections advanced, but total property tax revenues were unchanged because of a decline in special property tax receipts.

Though the effect was minor, collections in 1987 exaggerated the state's differences from national norms in sources of taxes.

TABLE 1
1985 ARIZONA TAX CAPACITY AND TAX EFFORT
Selected Revenue Sources

	Capacity Per Capita	Tax Capacity Index/Rank	Revenue Per Capita	Tax Effort Index/Rank	Tax Capacity	Tax Revenue
TOTAL TAXES	$1,393	99/21	$1,343	97/23	$4,439	$4,281
General Sales Taxes	336	95/27	511	152/ 3	1,069	1,628
Total Selective Sales Taxes	157	100/23	153	98/25	499	489
Motor Fuels	63	111/18	70	112/21	201	224
Insurance Premiums	19	99/22	17	93/32	60	55
Tobacco Products	16	88/43	16	95/30	52	50
Public Utilities	39	90/28	35	89/17	123	110
Alcoholic Beverages	16	115/13	12	75/29	51	38
All License Taxes	52	106/23	53	102/19	167	170
Corporations	12	106/18	1	9/36	39	3
Motor Vehicle Registrations	33	105/25	47	141/10	106	149
Personal Income Taxes	257	88/28	191	74/35	820	609
Corporation Income Taxes	60	76/48	63	105/14	192	202
Property Taxes	517	119/ 8	366	71/38	1,648	1,167
User Charges	288	92/29	267	93/38	918	851
TOTAL REVENUES	1,735	97/26	1,645	95/34	5,529	5,241

Source: Derived by the Center for Business Research, College of Business, Arizona State University from the Advisory Commission on Intergovernmental Relations, "Measuring State Fiscal Capacity, 1987 Edition."

Weak Retail Sales Contribute to State's Fiscal Problems

Retail sales growth in Arizona was unexpectedly weak in 1987 and improved only modestly in the first few months of 1988. Since the sales tax is such a large source of state government revenues, slow sales have contributed to the state's fiscal dilemma.

TABLE 1
1987 TAXABLE SALES
(In Thousands of Dollars)

	Retail	Share of State	Restaurant and Bar	Share of State
ARIZONA	$15,415,621	100.0%	$2,587,410	100.0%
Maricopa	10,097,890	65.5	1,644,978	63.6
Pima	2,735,613	17.7	479,360	18.5
Non-metropolitan	2,582,118	16.8	463,085	17.9

TABLE 2
1987 PERCENT CHANGE IN TAXABLE SALES ON AN INFLATION-ADJUSTED PER CAPITA BASIS

	Retail	Restaurant and Bar
ARIZONA	–2.8%	0.3%
Maricopa	–4.8	1.8
Pima	0.5	–6.7
Non-metro	1.9	2.7

TABLE 3
1987 TAXABLE SALES PER CAPITA

	Retail	Restaurant and Bar	Ratio
ARIZONA	$4,528	$760	6.0
Maricopa	5,126	835	6.1
Pima	4,306	755	5.7
Non-metro	3,230	579	5.6

Source (Tables 1, 2 and 3): Center for Business Research, College of Business, Arizona State University from Arizona Department of Revenue data.

1987 CALENDAR YEAR

In 1987, retail sales in Arizona exceeded $15.4 billion; restaurant and bar sales added nearly $2.6 billion more. Sales in the Phoenix area accounted for close to two-thirds of the total (see Table 1). Tucson area sales barely exceeded those of non-urban Arizona. Among the rural counties, Coconino registered the greatest sales in each category.

In 1987, retail sales increased 4.3 percent; restaurant and bar sales rose 7.6 percent. However, inflation – 4.1 percent in the Phoenix area – accounted for most of these gains. Further, the Arizona population increased 3.1 percent during 1987. Thus, real per capita sales barely rose during 1987 in the restaurant and bar category and actually declined in the retail classification (see Table 2).

Eight of the 15 counties experienced a decline in real per capita retail sales, including a large 4.8 percent decrease in the Phoenix area. In contrast to retail sales, Maricopa County registered a real per capita increase in restaurant and bar sales, but Pima County experienced a sharp decline, the worst in the state. This pattern of relative strength in one measure but weakness in the other prevailed in several rural counties as well, though overall, rural Arizona posted the greatest increase in both retail and restaurant and bar sales. The inconsistent growth between measures and among counties is not easily explained.

LONG-TERM PATTERNS

Large differences in sales per capita occur throughout the state. Both retail and restaurant and bar sales per capita are highest in Maricopa County and lowest in non-urban Arizona (see Table 3). Per capita sales are affected by numerous factors, including affluence of residents, commuting patterns to retail centers, cultural differences, tourism, and seasonal residents.

The ratio of retail sales to restaurant and bar sales does not vary that much between the two urban areas and non-urban Arizona as a whole, but does exhibit large differences by county. This ratio in part is a measure of tourism since restaurant and bar sales are much more affected by tourists than are retail sales.

Sales of both types are seasonal, but the pattern varies across Arizona. The high-elevation northern counties have peak sales in the summer and, except for December retail sales, have the lowest sales in the winter, corresponding to their tourist/seasonal resident season. The southern desert counties, including the two urban areas, have their peak season in the winter or spring, with lowest sales in the summer. Mid-elevation counties and those without a strong tourism component experience less seasonality in their sales.

RECENT TRENDS

The growth rate in both retail and restaurant and bar sales slowed during fall 1987 in several counties, including Maricopa. The weakening was most severe in restaurant and bar sales in the southern counties, most of which had been experiencing relatively rapid growth. Retail sales strengthened in February and March of 1988, but were very weak in April. Growth of restaurant and bar sales remained slightly negative on a real per capita basis.

During the first 11 months of the 1987-88 fiscal year used by state government, retail sales rose 4.8 percent and restaurant and bar sales advanced 6.3 percent. Inflation during the fiscal year was 3.9 percent and population gains were approximately 2.3 percent. Thus, even an extraordinarily good last month of the year would not have brought growth in retail sales to the breakeven point on a real per capita basis.

– Tom R. Rex
Research Manager

Population Projections Vary Widely

TABLE 1
ARIZONA POPULATION ESTIMATES AND PROJECTIONS
(In Millions)

	1987 Estimate	*2000 Projection*	*Population Change*
Arizona Dept. of Economic Security	3.48	5.34	1.86
Center for Business Research–High	3.41	4.97	1.56
Center for Business Research–Most Likely	3.41	4.75	1.34
U.S. Bureau of the Census	3.39	4.62	1.23
Center for Business Research–Low	3.41	4.58	1.17
Woods & Poole Economics, Inc., Washington, D.C.	3.29	4.35	1.06
NPA Data Services, Washington, D.C.	3.37	4.22	0.85

Source: Organizations listed above.

The U.S. Bureau of the Census recently released a new series of population projections for all states, derived from a sophisticated model that was three years in the making. This has prompted the Center for Business Research to update the comparison of population forecasts included in the July/August 1986 issue of *Arizona Business.*

During the last two years, projections have been created or updated by at least five organizations. Their outlook for Arizona varies considerably, as seen in Table 1. The Census Bureau's predicted population change and population in the year 2000 are somewhat lower than those of the CBR, whose most likely scenario (see the May 1988 issue of *Arizona Business*) falls nearly in the middle of the two extreme projections.

During the 13 years from 1987 to 2000, the anticipated average annual population change ranges from 143,000 by the Arizona Department of Economic Security (DES) to only 65,000 by the National Planning Association (NPA). Such divergent possible population flows have serious implications for both the public and private sectors.

The public sector is a heavy user of population estimates and projections. Numerous statutes, ordinances and the like require the use of population figures, for such purposes as disbursement of funds and planning long-term allocation of resources.

Projections of population growth also are widely used in the private sector for planning purposes. For example, real estate development, such as the planned communities that are increasingly numerous in the Phoenix area, is typically based in part on population projections.

ANALYSIS OF PROJECTIONS

U.S. Bureau of the Census

The Census Bureau's new model includes virtually all demographic data available on a state-specific basis, including fertility and mortality data, state-to-state migration flows, and international immigration and emigration.

The fundamental demographic trend underlying these predictions is that the U.S. population as a whole is becoming older – more middle-aged and elderly with fewer young individuals. As a result, mortality will increase, births will decrease, and interstate migration will slow. Otherwise, continuation of existing trends is largely assumed.

In the North, the Great Lakes region is predicted to lose population through the rest of this century while growth in the Plains states is expected to remain slow. In contrast, population growth is stronger during the 1980s than in the 1970s along the East Coast. The Northeast is forecast to continue growing faster in the 1990s, contrary to the national trend toward slower growth that is foreseen for all other regions.

In the rapidly growing southern part of the country, growth is expected to slow only marginally in the South Atlantic region in the 1990s. In contrast, growth in Texas and surrounding states peaked in the early 1980s, slowing sharply by the mid-1980s. This region is not likely to grow as fast in the 1990s as from the early 1970s to early 1980s.

Growth in the Mountain states has slowed; the Census Bureau predicts further slowing equal to the national pace. The Pacific region experienced much faster growth in the 1980s than in the 1970s, though this was limited almost entirely to California. As in the Mountain states, growth is anticipated to slow during the rest of the century.

Thus, despite less interstate movement, the Sunbelt population will continue to grow and considerable net out-migration from northern states will persist. According to the Census Bureau projections, Arizona will be the fastest growing state on a percentage basis (35 percent between 1987 and 2000).

NPA Data Services, Washington, D.C.

Though national population growth is expected by NPA to slow at about the same rate as predicted by the Census Bureau, the regional distribution of population is considerably different, both in the 1987 estimates and in the projections. NPA projects much less regional migration in coming years than experienced during the 1970s and 1980s – a sharp break from established patterns. NPA also assumes much less migration from North and East to the Sunbelt, with differences particularly apparent in the Midwest (see Figure I).

Woods & Poole Economics, Inc., Washington, D.C.

The basic forecast made by Woods & Poole (W&P) – an economic consulting firm – differs from the others in that it assumes faster, rather than slower, national population growth during the rest of the century, compared to the 1970-87 period. The regional distribution of population growth predicted by Woods & Poole is similar to that of NPA, except that W&P anticipates somewhat faster growth in the Pacific region, offset by slower growth in the Mountain region. Arizona is among just a few states anticipated to grow more slowly than in the Census Bureau projections.

Other National Groups

Another set of population figures available for limited periods (year-end 1986 and year-end 1991) are produced by *Sales and Marketing Management* (SMM) magazine. Both their 1986 estimate and 1991 projection are slightly lower than CBR figures.

Forecasts made by the U.S. Bureau of Economic Analysis in 1985 have not been updated. Their anticipated state population in the year 2000 was 4.40 million, less than the predictions of the CBR or Census Bureau.

Center for Business Research

The CBR's most likely scenario shows faster growth than predicted by any agency shown in Table 1 other than DES. It foresees average annual population growth of 103,000 between 1987 and 2000, slightly more than during the 1970s or 1980s, but 40,000 per year less than in the DES series.

The difference between the CBR and Census Bureau projections gradually widens over time. The CBR looks for average population gains to become slightly greater in the 1990s while the Census Bureau expects the growth to gradually decelerate.

Department of Economic Security

In late 1986, the state's "official" projections produced by DES were elevated by some 400,000 people in the year 2000. As discussed in the May 1988 issue, little rationale has been provided for the sharp revision, for predicted growth much higher than previously experienced, or for forecasts much higher than those of the other organizations reviewed in this article.

Another perspective on the DES numbers can be obtained by comparing projections produced in each state to forecasts by other organizations, such as the Census Bureau. In many states, the locally produced projections are similar to those of other agencies, but when a difference occurs, the local numbers usually are higher. The DES projection for the year 2000, however, is furthest off the Census Bureau prediction of the 40 states with updated outlooks. The 717,000 person difference exceeds that of states several times the size of Arizona. The 16 percent difference is third, behind the smaller states of North Dakota and West Virginia.

Moreover, the Census Bureau projections already assume that the Arizona population will grow faster than that of any other state, that net out-migration will occur from many northern states, and that growth in other Sunbelt states also will slow. Given these conditions, it is difficult to perceive how Arizona will receive an additional 717,000 net migrants in 13 years, as anticipated by DES.

The state's "official" projections may change later this year, however. The Department of Economic Security currently is working on a new set of numbers, generated by a new forecasting model.

COUNTY PROJECTIONS

County population projections are not available from the Census Bureau, but have been prepared by DES, NPA, SMM and W&P. Nearly all of the difference between CBR and SMM predictions for 1991 occur in Pima County, where the CBR assumes a modest undercount in the 1985 Special Census. Comparing the CBR and NPA forecasts for the year 2000, the CBR figures are higher in nearly all counties, with the proportionate difference greatest in Maricopa County. Compared to DES, the CBR projections are lower in all counties, but the proportionate difference is greatest in the metropolitan counties.

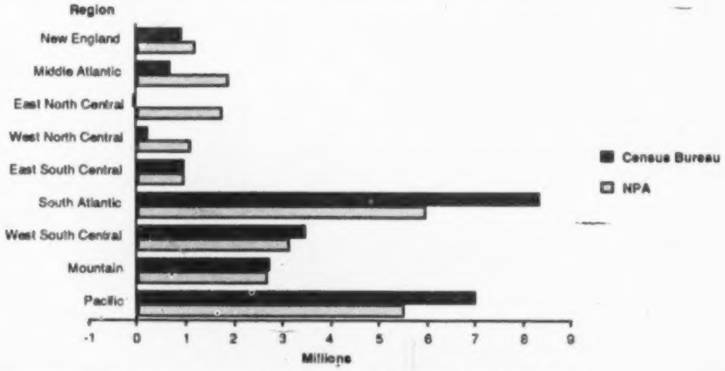
CONCLUSION

Anyone concerned with Arizona's growth should be aware of the wide range of population projections available. The state's "official" projections, which assume sharp increases in growth, are much higher than other series. In contrast, respected national groups expect considerably lower population growth in Arizona than the average of the 1970s and 1980s.

The CBR projections are equidistant from the two extremes, yet are higher than the Census Bureau predictions. Given the sophistication of the Census Bureau model, the CBR's "low" series must be given serious consideration.

– Tom R. Rex
Research Manager

FIGURE I
PREDICTED POPULATION CHANGE, 1987-2000



Source: U.S. Bureau of the Census and NPA Data Services, Inc.

Valley Inflation Rate Slightly Higher in Second Quarter

Inflation in the Phoenix metropolitan area accelerated modestly during second quarter 1988. The seasonally adjusted 1.3 percent increase exceeded the rates of the prior four quarters (see Table 1). Before seasonal adjustment, the Metropolitan Phoenix Consumer Price Index jumped 2.1 percent to 119.9 (1982-84=100), 3.8 percent higher than in second quarter 1987.

The uptick in the inflation rate was expected (see the CPI report in the May issue). Further, seasonally adjusted quarterly rates during the second half of 1988 should approximate that of the second quarter.

COMPONENT INDEXES

Price surges in a few subcategories accounted for most of the overall acceleration in the inflation rate. Most significant were increases in airline fares, prices of fresh fruits, electricity rates, and charges for professional medical services.

Food and Beverages

Food at home prices rose more rapidly in the second quarter than in nearly two years, but not much more than in the first quarter. The higher rate resulted mostly from a huge 37 percent climb in fresh fruit prices, putting them 50 percent higher than in second quarter 1987. Prices of meats, poultry, fish and eggs rose nearly 4 percent, but the dairy products index did not change and prices of cereal and bakery products and other foods at home declined (see Table 2).

Price changes during the second quarter were unrelated to the drought in the nation's farm belt. Somewhat higher food price inflation in the Phoenix area should result from the drought, but probably will not become noticeable until the winter.

Food away from home prices advanced the most since seasonal adjustment began in 1984. The 2.2 percent gain, however, followed a 1.3 percent decline in the first quarter.

Housing

Housing costs barely went up, with declines in shelter costs and prices of household furnishings and operations nearly offsetting a large increase in fuel and other utility rates. High vacancy rates and slow population growth caused both renters' costs and homeowners' costs to dip during the second quarter.

Electricity rates were boosted 4 percent, the most in two years. Other utility costs jumped nearly 7 percent, a result of large advances in the water and sewerage and cable TV subcategories.

TABLE 1
PERCENT CHANGES IN
METROPOLITAN PHOENIX CONSUMER PRICE INDEX

		Seasonally Adjusted from Preceding Quarter					
Expenditure Category	*Relative Importance*	*1st 1987*	*2nd 1987*	*3rd 1987*	*4th 1987*	*1st 1988*	*2nd 1988*
ALL ITEMS	100.0	2.1	1.1	0.7	0.9	0.8	1.3
Food and Beverages	16.4	–0.2	0.5	0.9	0.6	0.9	2.0
Housing	42.4	0.5	0.2	0.5	2.3	1.0	0.2
Apparel and Upkeep	5.8	–2.5	2.8	2.7	0.9	2.3	2.9
Transportation	19.1	8.1	3.0	0.9	-2.0	–0.5	2.4
Medical Care	6.7	1.8	2.7	–2.1	0.9	0.3	3.3
Entertainment	4.6	2.4	–1.2	2.0	3.1	1.2	0.1
Other Goods and Services	5.0	2.0	0.3	2.9	0.6	2.2	0.9

TABLE 2
METROPOLITAN PHOENIX CONSUMER PRICE INDEX
Second Quarter 1988

	Index (1982-84 = 100)		**Percent Change from**	
Expenditure Category	*Last Quarter*	*This Quarter*	*Last Quarter* *	*Year-Ago Quarter*
ALL ITEMS	117.4	119.9	1.3	3.8
Food and Beverages	116.6	119.3	2.0	4.2
Food	115.5	118.2	2.1	3.6
Food at Home	117.4	119.7	2.1	4.7
Cereal and Bakery Products	132.5	131.3	–0.7	5.9
Meats, Poultry, Fish, and Eggs	108.9	111.5	3.8	4.8
Dairy Products	113.1	113.1	0.1	2.6
Fruits and Vegetables	126.9	146.3	10.2	20.6
Other Food at Home	115.2	112.4	–2.2	–2.9
Food Away from Home	114.0	116.7	2.2	2.9
Housing	113.8	115.5	0.2	4.2
Shelter	115.8	115.0	–0.7	3.0
Renters' Costs**	119.6	119.1	–0.3	2.0
Homeowners' Costs**	118.0	117.2	–0.7	3.1
Fuel and Other Utilities	108.0	120.5	4.2	9.0
Gas (piped) and Electricity	100.8	116.1	2.6	6.9
Household Furnishings/Operations	113.0	113.0	–0.7	3.6
Apparel and Upkeep	114.7	119.6	2.9	8.0
Transportation	113.7	117.1	2.4	1.1
Private Transportation	114.4	116.5	1.3	0.1
New and Used Cars	127.6	128.6	0.8	3.6
Motor Fuels	73.7	76.4	–1.7	–11.7
Public Transportation	106.3	116.2	9.1	8.1
Medical Care	142.2	146.0	3.3	2.4
Entertainment	138.9	138.6	0.1	9.1
Other Goods and Services	130.7	132.1	0.9	6.9

*Seasonally adjusted
**Base period is second quarter 1983.

Source (Tables 1 and 2): Metropolitan Phoenix data compiled by the Center for Business Research, College of Business, Arizona State University, in co-sponsorship with Valley National Bank.

Transportation

Second quarter inflation rates in the transportation category ranged widely. Prices soared for public transportation, automobile maintenance and repair, and vehicle rental and related items. Gasoline prices went down slightly; they were 12 percent lower than they were one year earlier. Small gains were measured in new car prices and auto finance charges.

Medical Care

Health care costs rose to the highest level since first quarter 1984, following three quarters of net decline. The hospital and related services index made its greatest jump in more than four years; it was 15 percent higher than in second quarter 1987. After modest gains in the preceding four quarters, fees for physician services surged, leading the increase in the professional medical services category.

Other Categories

Though entertainment costs barely changed in the second quarter, they still were 9 percent higher than in second quarter 1987. The entertainment services subcategory soared 20 percent in the last four quarters.

Apparel prices continued to rise in the second quarter; advances in excess of 2 percent were recorded in four of the last five quarters. The increase in the other goods and services category was less than 1 percent.

TABLE 3
METROPOLITAN PHOENIX AND UNITED STATES CONSUMER PRICE INDEXES
Second Quarter 1988

	Percent Change from Last Quarter*		Percent Change from One Year Ago	
Expenditure Category	*Phoenix*	*United States*	*Phoenix*	*United States*
ALL ITEMS	2.1	1.3	3.8	3.9
Food and Beverages	2.3	1.1	4.2	3.4
Housing	1.5	0.9	4.2	3.6
Apparel and Upkeep	4.3	5.5	8.0	4.7
Transportation	3.0	1.2	1.1	3.2
Medical Care	2.7	1.5	2.4	6.4
Entertainment	–0.2	1.2	9.1	4.3
Other Goods and Services	1.1	0.7	6.9	6.5

*Not seasonally adjusted

Source: Metropolitan Phoenix data compiled by the Center for Business Research, College of Business, Arizona State University, in co-sponsorship with Valley National Bank; other data are from the U.S. Department of Labor, Bureau of Labor Statistics.

COMPARISON AREAS

Before seasonal adjustment, second quarter inflation in the Phoenix area was greater than the national average (see Table 3). Higher inflation was measured in each of the major categories except entertainment and apparel and upkeep.

Inflation during the year ending second quarter 1988 was nearly equivalent in the Phoenix area to the national average, continuing the relationship of the last three years. Higher Phoenix area inflation in entertainment and apparel was offset by lower inflation in transportation and medical care.

OUTLOOK

The forecast of inflation remains much the same as discussed one quarter ago. Seasonally adjusted gains of about 1.3 percent per quarter should continue, pushing the annual rate only slightly higher than 4 percent by year end. The drought may cause a slight acceleration in the 1989 inflation rate.

– Tom R. Rex
Research Manager

Education Spending Higher Than Reported

In contrast to reports from the National Education Association that place Arizona in the bottom ten states in expenditures per pupil, information from the just-released U.S. Bureau of the Census report, "Finances of Public School Systems in 1985-86," reveals that per pupil expenditures for elementary and secondary education totaled $3,816 in Arizona, 4 percent more than the national average of $3,678. Arizona ranked 19th of the 50 states and the District of Columbia. The NEA study is based on their own estimated expenditures for Arizona; the state has not supplied actual expenditure data to NEA for several years.

Arizona spends substantially more of its funds on capital outlays, such as construction of buildings and land purchases, than the national average. The most important finding is that the amount available for current operations, such as supplies and employee compensation, was less than the national average.

In 1985-86, the amount spent on current operations per pupil in Arizona was $3,105, 9 percent less than the national average of $3,430, ranking the state 32nd. That portion of current operations expended on salaries and wages was 11 percent less than the national norm, ranking Arizona 33rd.

– Tom R. Rex
Research Manager

Coincident Indexes Reverse Course in April

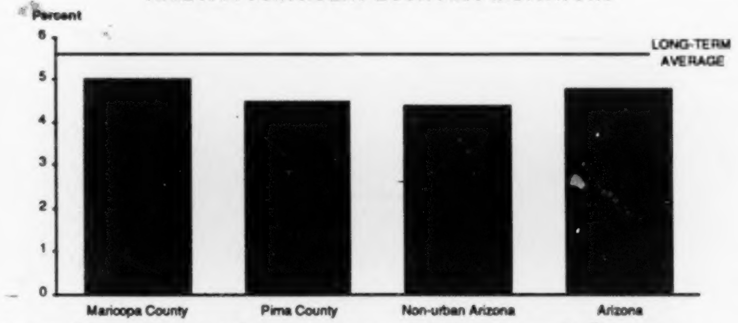
The Arizona economy performed poorly in April following three months of fairly strong growth. Economic gains were nil in Maricopa County; declines occurred in the rest of the state.

The coincident index for the Phoenix area was unchanged at 144.2 (1982=100). The index for the Tucson area fell 0.8 percent to 138.4. In non-metropolitan Arizona, the decline was even greater at 1.1 percent, lowering its index to 131.9.

Retail sales decreased throughout the state, offsetting two stronger months in February and March. In Maricopa County, the inflation-adjusted and seasonally adjusted volume was the lowest since May 1985. The drop was the biggest since April 1984.

Employment also decreased throughout Arizona, though the reduction was not as severe in the Phoenix area as elsewhere. During the three months ending in April, employment barely gained in Maricopa County and declined elsewhere. The unemployment rate remained steady in the metropolitan areas, but climbed in non-urban Arizona in April.

FIGURE I
ANNUAL GROWTH THROUGH APRIL 1988 IN ARIZONA COINCIDENT ECONOMIC INDICATORS



Source: Center for Business Research, College of Business, Arizona State University

The value of commercial building permits rose in Maricopa County for the third straight month, though the level still did not match that of last fall. Elsewhere in the state, the building permit valuation dropped considerably in April. The value in Pima County was the fifth lowest since records began in 1974; in rural Arizona, only two months since 1976 have had a lower value.

Though monthly growth remains variable, the economy throughout Arizona continues to expand, but at subpar rates (see Figure I). With employment losses and rising unemployment reported in preliminary May data, the Arizona economy appears to have experienced another bad month.

The composite statewide measure fell 0.3 percent in April to 140.9.

– Tom R. Rex
Research Manager

Purchasing Indicators Less Positive in June

TABLE 1
JUNE PURCHASING SURVEY

Key Indicators	Percent of Purchasing Managers Indicating Each Response (June compared to May) *Higher*	 *Same*	 *Lower*
Prices paid for major commodities	54	44	2
Delivery time from vendors	29	63	8
Purchased materials inventory level	24	43	33
New orders received	39	33	28
Production	41	39	20
Employment	27	50	23
Purchases	42	30	28

Source: Purchasing Management Association of Arizona, Purchasing Management Association of Southern Arizona, and the Northern Arizona Group.

The Arizona economy continues on its growth curve, but lost some of its buoyancy in June, according to the monthly survey of purchasing managers. While all economic indicators were on the positive side, the increases were smaller than in May. The new order receipt rate has dropped in half between April and June, and the employment increase was the smallest in the past 17 months. Prices moved sharply upward, with the June increase at its highest since last January and the second highest in the past seven years. The price increase rate in each month this year has been higher than in any of the months of 1987, signaling that inflation may again become a serious problem. Further sharp price jumps in the second half of the year may make it more difficult for the economy to sustain its upward trend.

The expansion, now well into its sixth year, is beginning to show signs of age. While vendor backlogs are growing, the pressures appear to be diminishing. Further increases in new orders, production, and employment should continue, although at a more moderate pace, over the second half of the year. However, the production increase rate will continue to slow during the balance of the summer, reacting to the lagging new order receipt rate.

Imbalances in resource supply (labor and materials) are developing which will further slow growth. As the business cycle matures, inflation probably will accelerate and interest rates likely will rise, limiting expansion.

– Harold Fearon

Dr. Fearon is the National Association of Purchasing Management Professor in the ASU College of Business.

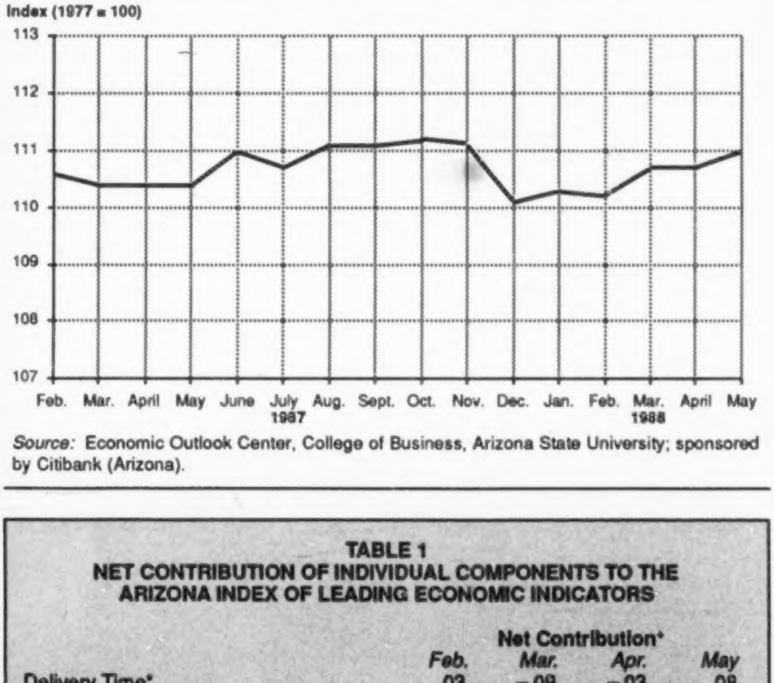
Arizona Leading Index Up in May

The Arizona Index of Leading Economic Indicators increased in May to 111.0 after holding steady at 110.7 in April (see Figure I). The index was above the 110.5 May 1987 figure (1977 = 100), but still below the peak value of 111.2 achieved just before the October stock market crash.

The index is based on 10 economic indicators, combined and weighted to project the pace of economic activity several months ahead. Five of the components come from a monthly survey of Arizona purchasing managers conducted by Dr. Harold Fearon. The Arizona Index of Leading Economic Indicators is sponsored by Citibank (Arizona).

Providing the biggest boost to the index was a jump in seasonally adjusted residential building permits. Money supply, sensitive prices, delivery times, production, employment and average hours worked were also positive influences. Unemployment insurance claims, inventories and new orders had a negative impact.

FIGURE I
ARIZONA INDEX OF LEADING ECONOMIC INDICATORS



Source: Economic Outlook Center, College of Business, Arizona State University; sponsored by Citibank (Arizona).

TABLE 1
NET CONTRIBUTION OF INDIVIDUAL COMPONENTS TO THE ARIZONA INDEX OF LEADING ECONOMIC INDICATORS

	Net Contribution*			
	Feb.	*Mar.*	*Apr.*	*May*
Delivery Time*	.03	–.09	–.03	.08
Inventory Levels*	.06	–.02	–.06	–.08
New Orders*	.02	.01	.04	–.07
Production*	–.08	.06	.00	.04
Employment*	–.09	.01	.00	.04
Residential Building Permits	–.10	.31	–.35	.39
Unemployment Insurance Claims	–.23	.05	.21	–.23
Average Workweek, Manufacturing	.05	.07	–.02	.02
Money Supply	.25	.11	.15	.03
Change in Sensitive Materials Prices	–.07	.00	.03	.04
OVERALL INDEX CHANGE (%)	–.16	.50	–.03	.26

*The net contribution of each component is calculated by multiplying the monthly percent change in its index by its relative importance.

*Based on indicators from the purchasing management associations of Arizona and southern Arizona.

Source: Economic Outlook Center, College of Business, Arizona State University; sponsored by Citibank (Arizona).

COMPONENTS

The largest single source of information for the leading index comes from Dr. Fearon's monthly survey of purchasing managers (see page 10). Historical relationships between the general economy, as measured by Arizona GSP, and the variables from the Fearon survey were reviewed a few years ago in *Arizona Business* (see "The Survey of Arizona Business Conditions as a Leading Economic Indicator," *Arizona Business,* Fourth Quarter, 1984).

In brief, the analysis showed production, new orders and employment all provided a warning lead time of nearly one year preceding recessions. Inventory and delivery time were less sensitive, while price changes gave the least warning – a mere two months, on average.

The variables signal recession when they exhibit successive months of negative values and drops of significant size (specific decision rules are explained in the *Arizona Business* article referenced above). Production and employment have been positive for the past three months. The new order variable was a negative contributor to this month's leading index, but was positive in the previous three month period.

OUTLOOK

An examination of the recent seasonally adjusted performance of the five business conditions variables compiled by Dr. Fearon shows no evidence of the types of movement usually associated with a recession in the months ahead. Instead, these indicators have been moving much like the leading index itself, in a pattern consistent with slow but positive economic growth.

– **Tracy L. Clark,** *Economist*
Economic Outlook Center

ARIZONA ECONOMIC INDICATORS

	Month or Quarter	Value	Percent Change from Previous Period	Percent Change from Year Ago	Year-to-Date Value	Year-to-Date Percent Change from Year Ago
GROSS STATE PRODUCT (In Billions of Dollars, at Annual Rate)						
Arizona - Current Dollars	4th Qtr.	58.055	0.5	8.5	NA	NA
Arizona - 1982 Dollars	4th Qtr.	48.035	–1.2	3.5	NA	NA
COINCIDENT ECONOMIC INDEXES (1982 = 100)						
Arizona	April	140.9	–0.3	4.8	NA	NA
Metropolitan Phoenix	April	144.2	0.0	4.9	NA	NA
Metropolitan Tucson	April	138.4	–0.8	4.5	NA	NA
Non-urban Arizona	April	131.9	–1.1	4.4	NA	NA
CONSUMER PRICE INDEX (1982-84 = 100)						
Metropolitan Phoenix	2nd Qtr.	119.9	2.1	3.8	NA	NA
INDEX OF LEADING ECONOMIC INDICATORS (1977 = 100)						
Arizona	May	111.0	0.3	0.5	NA	NA
BUILDING PERMITS (Total Dollar Value in Thousands)						
Maricopa County	May	376,041	10	4	1,438,796	–13
Pima County	May	40,194	–8	–9	220,932	–16
Balance of State	May	60,013	37	2	255,071	3
Arizona	May	476,248	11	3	1,914,799	–11
TOTAL HOUSING UNITS AUTHORIZED						
Maricopa County	May	2,012	–24	–18	9,492	–23
Pima County	May	325	–30	–17	2,670	–16
Balance of State	May	753	18	–19	3,799	–8
Arizona	May	3,090	–17	–18	15,961	–19
HOME SALES						
Maricopa County - Number	May	5,325	20	3	20,175	–17
Maricopa County - Median Price	May	79,050	0	–0.6	79,525	0.9
HOUSING AFFORDABILITY INDEXES						
Metropolitan Phoenix - New Homes	1st Qtr.	91	5.8	–14.2	NA	NA
Metropolitan Phoenix - Resale Homes	1st Qtr.	123	7.9	–5.4	NA	NA
MORTGAGE INTEREST RATES (Conventional, 30-year, Fixed-rate)						
Maricopa County	June	10.4	0.0	0.0	NA	NA
POPULATION ESTIMATES (In Thousands)						
Maricopa County	1st Qtr.	2,006	0.7	2.4	NA	NA
Arizona	1st Qtr.	3,463	0.6	2.2	NA	NA
ELECTRICAL POWER SALES (In Millions of Kilowatt Hours)						
Arizona	May	3,565	14.6	28.0	*	*

NA = Not Applicable

*April value not available

Source: Center for Business Research, College of Business, Arizona State University

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Second Quarter Net Migration is Weakest of the 1980s

Net in-migration to the Phoenix metropolitan area—and all of Arizona—was nearly non-existent during second quarter 1988. At 1,000 persons, the net inflow to the Phoenix area was the lowest of the 1980s, even lower than the worst of the 1981-82 recession (see Figure I).

The extremely low net in-migration figure is directly tied to economic conditions, particularly job creation. During the second quarter, wage and salary employment fell by approximately 3,000 in the Phoenix area.

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14 July Purchasing Survey
15 June Leading Index
16 AZ Economic Indicators

Layoffs have occurred particularly in the construction industry statewide and in the manufacturing industry in the Tucson area. These workers have little hope of finding employment in Arizona for at least several months. It appears they are leaving the state to find work elsewhere.

Typically, when economic conditions are poor in Arizona, the entire nation is in a recession, thus jobs are not readily available elsewhere and the unemployed do not leave. During 1988, however, other areas are doing well economically, including neighboring California. Thus, net in-migration figures are below even recessionary levels because not only are fewer people moving to the state due to the unavailability of jobs, but out-migration, which usually is stable, is up.

This theory of increased out-migration fits other data as well. Despite the loss of jobs, the unemployment rate has not risen much, implying that people have left the state. The housing vacancy rate, particularly of single-family homes, is the highest since records began in the late 1960s, indicating that people are leaving the state without selling or renting their homes.

Net in-migration has been well below average for five consecutive quarters. In the last four quarters through second quarter 1988, the figure of 21,000 net in-migrants to the Phoenix area was less than one-half the 1970-87 annual average.

Because of net natural increase (births less deaths), the Phoenix area population rose 6,000 during the second quarter, to 2,013,000. Statewide, the population on July 1 was estimated at 3,476,000, up 10,000 during the second quarter.

EMPLOYMENT

The number of people employed declined across Arizona during second quarter 1988, according to seasonal adjustment of data produced by the Arizona Department of Economic Security. Compared to March, employment in June was about 3,000 less in the Phoenix

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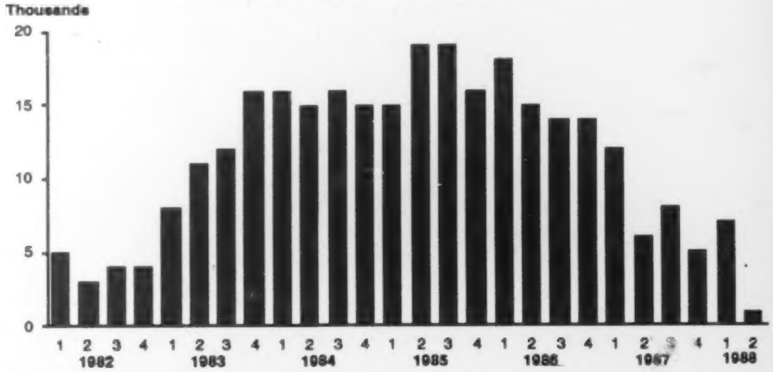
FIGURE I
NET IN-MIGRATION TO MARICOPA COUNTY



Source: Center for Business Research, College of Business, Arizona State University

area, 5,000 lower in the Tucson area, and 2,000 fewer in rural Arizona. Both in Maricopa County and statewide, the three-month decrease was similar to the worst of the 1981-82 recession.

Coupled with no change in March, little advance in February and a strong boost in January, Arizona employment gains during the first six months of 1988 were nil. New job creation in the Phoenix area offset losses elsewhere, especially in the Tucson area.

While declines were worst in the construction industry, losses occurred in several other industries, particularly finance, insurance and real estate, as well as transportation, communications and public utilities. Even services, which usually adds jobs throughout recessions, suffered employment losses in the second quarter.

In the Phoenix area, retail trade and manufacturing were the only industries to experience an increase in employment. In the rest of the state, only government and mining added jobs. The manufacturing sector was especially weak in Pima County, even before the IBM layoffs were announced.

The stage was set for the current conditions in 1986, when construction swung from strong employment gains to layoffs. Manufacturing employment increases had already slowed, though they have continued relatively steady at a modest pace. The slowdown in these two goods-producing industries caused employment gains in other sectors to deteriorate somewhat during 1986, but they then remained relatively constant and strong until early 1988.

OUTLOOK

Employment should resume rising soon. Many of the layoffs, such as by public utilities, were one-time phenomena. Employment gains, however, are likely to remain subpar for at least several months, and possibly for much longer. As a result, net inflows of population are likely to improve later this year and in early 1989, but should remain well below average levels.

– **Tom R. Rex**
Research Manager

Arizona Among Leaders in 1980-87 Population Growth

Between 1980 and 1987, Arizona was the third fastest growing state in the nation with a 25 percent increase in population, according to the U.S. Bureau of the Census. The population climbed by 668,000, the fifth greatest numeric gain. Most of this increase (437,000) resulted from migration.

Census data shows a population rise from 2,718,000 on April 1, 1980, to 3,386,000 on July 1, 1987. The Center for Business Research estimate for mid-year 1987 is slightly higher (3,405,000). The difference is in Pima County, where the Census Bureau uses the 1985 special census as a benchmark; the CBR assumes a small undercount in that census.

1980-87 CHANGE

By Region

More than 85 percent of the nation's population growth between 1980 and 1987 occurred in four geographic areas – all in the South or West. Less than one-half of the nation's total population reside in those four areas.

New residents in the Pacific area (California, Oregon, Washington, Alaska, Hawaii) totaled 4,733,000, barely more than in the South Atlantic states (Florida, Georgia, the Carolinas, the Virginias, Maryland, Delaware and the District of Columbia). The West South Central area (Texas, Oklahoma, Louisiana, Arkansas) grew by 3,163,000 persons and the Mountain region, which includes Arizona, New Mexico, Colorado, Nevada, Utah, Wyoming, Idaho and Montana, added 1,794,000 residents.

Regional differences are even greater when measuring net migration. Only the four areas discussed above enjoyed substantial net in-migration; the New England states (Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut) experienced a small net inflow. Substantial net out-migration (1,741,000) occurred from the East North Central states (Ohio, Michigan, Illinois, Indiana, Wisconsin) while losses from the Middle Atlantic states (New York, New Jersey, Pennsylvania) and West North Central region (Minnesota, Iowa, Missouri, Nebraska, Kansas, the Dakotas) were still large (449,000 and 401,000). Migration to and from the East South Central area (Alabama, Kentucky, Tennessee, Mississippi) was barely negative.

By State

On a percentage basis, 1980-87 growth rates in Alaska and Nevada exceeded that of Arizona. Despite its much larger population, Florida's rate barely trailed that of Arizona. Other states high on the list were California, New Mexico, Utah and New Hampshire.

In terms of numbers of people, California added the most (3,995,000), followed by Texas (2,559,000) and Florida (2,277,000). Thus, 52 percent of the nation's population gain occurred in just three states. Georgia's gain also exceeded Arizona's, followed by Virginia, North Carolina, Washington and Colorado.

Looking only at migration, the picture was even more lopsided, with gains in California, Florida and Texas dwarfing those of the other states. Arizona ranked fourth, barely ahead of Georgia; another big gap separated these states from North Carolina and Virginia. On a percentage basis, Florida's migration growth rate was greatest, followed by Nevada and Arizona.

Growth from net natural increase was much different, with Alaska and Utah far ahead of the others on a percentage basis. Arizona was ninth. Florida's rate was one of the smallest in the country because of its elderly population.

Five "states" lost population between 1980 and 1987: Iowa, Michigan, West Virginia, Ohio and the District of Columbia. Growth was slow in other North Central and Mid-Atlantic states, particularly Pennsylvania and Indiana.

Based on percentages, net out-migration was greatest from Iowa, Wyoming, the District of Columbia, Michigan, West Virginia and Ohio. Numerically, Michigan lost the most people (503,000), followed by Ohio, Illinois, New York, Indiana and Pennsylvania.

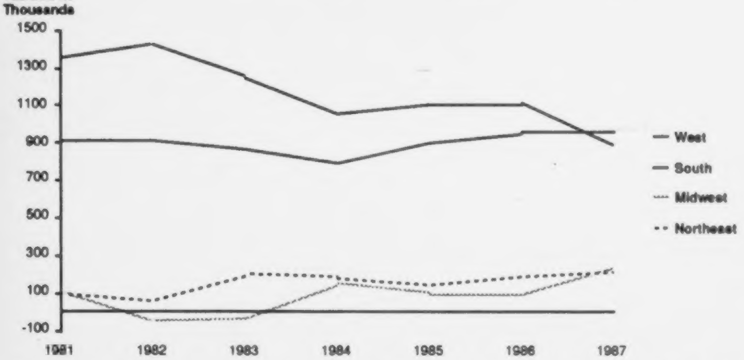
ANNUAL CHANGE

By Area

Growth patterns have varied during the 1980s. After experiencing little growth in the early part of the decade, New England had its strongest year in 1987 (mid-year 1986 through mid-year 1987). A similar pattern is found in the East North Central area, which suffered population losses in 1982 and 1983 – net out-migration exceeded net natural increase by approximately 100,000 per year – but enjoyed a gain of 182,000 in 1987, thanks to the industrial recovery.

In contrast, economic conditions in the West North Central region were stronger in the early 1980s than thereafter. Farming problems slowed population gains to 18,000 in 1986, the worst year. Growth in the Mid-Atlantic states has been inconsistent from year to year while population gains in the East South Central area have been slow but steady.

FIGURE I
POPULATION CHANGE



Source: Calculated by the Center for Business Research, College of Business, Arizona State University, from U.S. Bureau of the Census data.

Population in the South and West grew the most in 1981 and 1982, and the least in 1984 and 1987, largely because of vagaries in the oil industry. Gains in the West South Central states varied immensely, from 818,000 at the peak of the oil boom in 1982 to only 46,000 in 1987. The Mountain states experienced a less severe version of the same pattern, due to the impact of the energy industry on the region, especially in Colorado and Wyoming. Increases ranged from 312,000 in 1982 to 185,000 in 1987.

The Pacific region's growth pattern largely was the opposite of the Mountain region's, with the greatest growth in 1986 and 1987. Likewise, the South Atlantic area's growth was affected by that of the West South Central region. The South Atlantic's smallest gains were in 1982 and 1983 and the largest occurred in 1986 and 1987.

By State

Arizona's yearly growth was unlike that of the other Mountain states, except perhaps Nevada. It experienced its slowest growth in the early 1980s, because of the two recessions, and its fastest in 1985 and 1986. In contrast, Montana, Idaho, Wyoming, Colorado and Utah grew the fastest from 1981 through 1983 and the slowest in 1986 and 1987.

Nearly all of the population gain in the Pacific region occurred in California, whose annual pattern was not much different from that of Arizona, except that California's strongest year was in 1987, when growth had already begun to slow in Arizona.

In the West South Central region, population growth swung widely between the peak in 1982 and the worst year in 1987 (from 610,000 to 100,000 in Texas, 118,000 to -34,000 in Oklahoma and 83,000 to -38,000 in Louisiana).

All states in the East North Central region enjoyed their greatest population growth of the 1980s in 1987; Ohio, Michigan and Indiana lost population between 1981 and 1983. In the West North Central area, Kansas, Nebraska and Iowa each lost residents between 1985 and 1987; Iowa's population decreased between 1981 and 1984 as well.

– Tom R. Rex
Research Manager

Second Quarter Homes Sales Rebound

Home sales in Maricopa County rebounded during second quarter 1988 from the lackluster prior quarter. However, the housing market likely will continue to be plagued by troubles from related economic markets.

ECONOMIC CONDITIONS

Over 15,000 single-family homes were vacant during the second quarter, according to the Phoenix Metropolitan Housing Study. Vacancies during both the first two quarters of 1988 were nearly twice as high as the next-highest 8,500 in fourth quarter 1986. Vacancy rates for single-family homes hit a high of 3 percent during the first two quarters, higher than any time since 1972. Apartments reached their all-time high vacancy of 17 percent, and may continue to increase when construction is completed on the 2,541 units permitted during second quarter 1988. Further, a negative 11,925 apartment units were absorbed during the second quarter, double the next highest decline of 5,400 during second quarter 1987.

Seasonally adjusted job growth hit its lowest level since 1982 during second quarter 1988; 3,500 fewer people were employed this quarter than in the first quarter, and the total number employed increased at half the national rate from June 1987 to June 1988.

Population net in-migration was estimated to be only 1,000 during the second quarter. When combined with the vacancy rate increase and declines in absorption and job growth this may imply that historically constant out-migration is on the rise, possibly due to better economic conditions in competing states.

Personal income has also been growing slowly – 1987's per capita income in Arizona was just 91 percent of the national average, and little change is expected in 1988.

SALES AND PRICES

Second quarter home sales totaled 13,700, an increase of 35 percent from first quarter 1988, but still 21 percent lower than second quarter 1987. New single-family homes increased the most from first quarter 1988 (49 percent), followed by resale single-family homes (35 percent). New and resale homes of both types lagged behind the levels of second quarter 1987.

New single-family homes have been generally following a trend of higher prices and lower sales volumes since second quarter 1987 – until second quarter 1988's 4 percent price decline accompanied by a 49 percent increase in sales. The question remains as to how much of the price change was truly a change in the price level of the same home (a price cut) and how much was a movement of buyers toward less expensive homes, possibly with fewer amenities.

Townhouses and condominiums performed worse than single-family homes. Resale townhouses/condos fared the worst compared to the prior quarter; prices fell 2.4 percent, but sales increased only 22 percent. New townhouse sales also rose only 22 percent, but that occurred in spite of a 10 percent price increase. When compared to second quarter 1987, new townhouse sales fell 67 percent, the largest decline of all categories.

FORECAST

Even though second quarter's sales rebounded from the prior two quarters, they were not great by historical standards, and the future looks precarious. The primary concerns center around projections for net in-migration, which are the lowest since 1982, and dismal job growth forecasts. Vacancy and absorption rates are also unsettling, while building permits are slowing significantly only in the townhouse/condo market. The aging of the baby-boom generation will continue to reduce the number of young people typically considered to be first-time homebuyers, and the already overbuilt multifamily market may experience another burst of new product.

– **Sharla Klvett,** *Research Analyst*
Arizona Real Estate Center

TABLE 1
METROPOLITAN PHOENIX HOME SALES

	Single-Family			Townhouse/Condominium			
Median Sales Price	*Resale*	*New*	*Total*	*Resale*	*New*	*Total*	*Grand Total*
First Quarter 1987	$75,000	$92,050	$81,400	$63,000	$70,950	$66,000	$78,500
Second Quarter 1987	77,500	94,650	84,000	64,000	74,650	67,000	80,725
Third Quarter 1987	79,700	100,200	86,000	62,000	75,550	64,900	82,000
Fourth Quarter 1987	77,500	102,400	85,700	63,350	80,625	66,500	82,500
First Quarter 1988	76,500	103,450	84,000	63,000	71,900	64,825	79,900
Second Quarter 1988	77,000	98,900	83,825	61,500	78,950	64,000	80,000
Number of Sales							
First Quarter 1987	6,525	3,975	10,500	1,550	1,050	2,600	13,100
Second Quarter 1987	9,725	4,350	14,075	2,225	1,025	3,250	17,325
Third Quarter 1987	8,925	3,550	12,475	2,225	650	2,875	15,325
Fourth Quarter 1987	6,825	3,575	10,400	1,750	650	2,400	12,800
First Quarter 1988	6,075	2,150	8,225	1,600	275	1,875	10,125
Second Quarter 1988	8,200	3,200	12,000	1,950	325	2,300	13,700

Note: All numbers rounded to nearest 25; subcategories may not add to total due to rounding.

Source: Arizona Real Estate Center, College of Business, Arizona State University; from data supplied by Real Estate Evaluation Group, Chandler, Az.

Housing Affordability Continues to Climb in Second Quarter

Affordability of Phoenix area single-family homes continued to climb during second quarter 1988. New home affordability improved more than resale, but remained considerably below the resale level.

The index for new homes surged to 96 from 91 the prior quarter, due primarily to a reduction in the median price. The median price of new single-family homes fell from first quarter's $103,450 to $98,900 in the second quarter. The index for resale homes remained relatively constant at 124, up from 123 the prior quarter.

An index of 100 or more indicates that a median-income household is able to qualify for a median-priced home, assuming a 15 percent downpayment on a fixed-rate, conventional, 30-year mortgage and an income qualification factor of 28 percent.

The resale home index has surpassed 100 each quarter since the beginning of 1986. New homes topped 100 only in 1987's first quarter, but are approaching the 100 mark once again. During second quarter 1988, a median-income household could afford a $95,200 home – more than the $77,000 median-priced resale home, but slightly less than the $98,900 median-priced new home.

COMPONENT CHANGES

Typically, variations in mortgage interest rates have had greater impact on housing affordability than fluctuations in either home prices or household incomes. However, during the second quarter the drop in new home prices affected affordability levels more than the minute increase in mortgage rates. The effective interest rate rose from 10.7 percent in the first quarter to 10.8 percent in the second quarter.

Household income rose faster than the median home price for both new and resale homes during both the first two quarters of 1988.

NATIONAL AFFORDABILITY

The Phoenix affordability indexes continued to outperform the national indexes. National affordability remained relatively stable during the second quarter; the new home index fell from 86 to 84 while the resale index rose from 106 to 107.

Both median home prices and their rates of increase were considerably different nationally than in the Phoenix area. From first quarter 1987 to second quarter 1988, U.S. resale homes increased from $84,300 to $88,975, over 5 percent. Phoenix area resales increased less than 3 percent.

New home prices increased 15 percent nationally since first quarter 1987, from $97,900 to $112,400. Phoenix area new home prices increased each quarter prior to falling in second quarter 1988. Overall, Phoenix area new homes increased only 7 percent during the five quarters, from $92,050 to $98,900.

OUTLOOK

No dramatic changes in housing affordability are expected during the next few months. New home prices fell during the second quarter, as predicted last quarter, but should not continue to fall significantly. Mortgage rates are uncertain, but any upward change during the balance of 1988 probably will be only slight. Local economic conditions are precarious (see Home Sales, p.4), but with no major changes expected in interest rates, income or home prices, affordability levels should experience only minor adjustments.

– **Sharla Kivett,** *Research Analyst*
Arizona Real Estate Center

The numbers in this article and the home sales article (see page 4) represent a new data series, inconsistent with that used prior to 1988. Both the new data source and the method of computer processing have been changed, primarily to improve the reporting of the number of new home sales. As previously reported, the prior numbers underestimated the number of new homes sold while overestimating resale homes.

In a future article, additional history will be provided from the new data source, as well as seasonally adjusted numbers. The old series will be continued on the back page table until we have the new history. For more information contact the Arizona Real Estate Center, College of Business, Arizona State University, Tempe AZ 85287, (602) 965-5440.

TABLE 1
HOUSING AFFORDABILITY INDEXES
Metropolitan Phoenix; Single-family Only

			Resale Homes			New Homes		
	Median Gross Monthly Income	*Effective Interest Rate*	*Median Sales Price*	*Monthly Housing Payment*	*Affordability Index*	*Median Sales Price*	*Monthly Housing Payment*	*Affordability Index*
1st Qtr. 1987	$2,920	9.4%	$75,000	$630	130	$92,050	$770	106
2nd Qtr. 1987 ...	2,970	10.6	77,500	710	116	94,650	870	95
3rd Qtr. 1987	3,020	10.8	79,700	750	113	100,200	940	90
4th Qtr. 1987	3,080	11.3	77,500	760	114	102,400	1,000	86
1st Qtr. 1988	$3,130	10.7%	$76,500	$710	123	$103,450	$960	91
2nd Qtr. 1988 ...	3,190	10.8	77,000	720	124	98,900	930	96

Source: Arizona Real Estate Center, College of Business, Arizona State University. Interest rates are from the Federal Home Loan Bank Board *News.*

Gross County Product Reveals Urban/Rural Disparities

Arizona Gross County Products (GCP) for 1970 through 1986 reveal two disparities in economic growth: the first between urban and rural counties during the 1980s, and the second in the rural counties between the 1970s and the 1980s. During the 1970s, non-urban economic growth was about equal to that of the Tucson area, not much behind the pace set by the Phoenix area. However, during the 1980s the growth rate in the rural counties was less than one-half that of the 1970s while urban growth continued at about the same pace.

CURRENT DOLLAR GCP

In 1986, Maricopa County's gross product of $35.9 billion accounted for more than two-thirds of the state's $52.5 billion gross product. Pima County's $8.5 billion product represented 16 percent of the state total. None of the rural counties' shares reached 2.5 percent; Yuma/LaPaz's GCP was largest at $1.3 billion.

The only sectors for which the Phoenix area did not account for two-thirds or more of the state's gross product were agriculture, mining and government (despite Phoenix being the state capital). Significant shares by other counties included Yuma's 25 percent of the state's agriculture gross product and Pinal's 24 percent of mining.

SECTORAL SHARES

The economies of the state as a whole and of its metropolitan areas are highly diversified, with relatively equal shares of gross product contributed by services, trade, manufacturing, government and FIRE (finance, insurance and real estate). In contrast, most of the non-urban counties are highly dependent on one or a few industries, particularly government and mining. In several counties, the importance of mining and agriculture is declining, but is being replaced by government. Dependence on these three industries is largely responsible for the poor performance of the non-urban economies during the 1980s.

TABLE 1
REAL ANNUAL AVERAGE GROWTH IN GROSS PRODUCT

	1970-86		1970-80		1980-86	
	Total	*Adjusted*	*Total*	*Adjusted*	*Total*	*Adjusted*
Apache	3.4%	3.8%	4.0%	4.6%	2.3%	2.4%
Cochise	1.8	2.5	1.7	2.6	1.8	2.2
Coconino	4.7	4.6	5.6	5.6	3.2	3.1
Gila	2.7	3.1	5.0	5.5	–0.9	–0.6
Graham	1.8	3.1	4.0	4.4	–1.7	1.0
Greenlee	1.9	–2.6	4.5	–0.7	–2.0	–6.7
Maricopa	6.3	6.3	6.3	6.2	6.5	6.5
Mohave	5.9	6.0	6.8	7.0	3.6	4.2
Navajo	6.4	4.9	8.5	6.7	3.0	2.0
Pima	4.9	5.0	5.1	4.7	4.1	5.5
Pinal	3.3	3.7	4.6	2.4	1.1	6.0
Santa Cruz	3.5	3.4	4.0	3.9	2.7	2.7
Yavapai	5.7	5.5	6.9	6.3	3.7	4.2
Yuma/LaPaz	4.4	3.5	5.4	4.0	2.9	2.6
Non-metropolitan	3.9	3.9	5.1	4.6	2.1	2.9
ARIZONA	5.6	5.7	5.8	5.7	5.4	5.8

Note: Adjusted gross product excludes the contributions of the agriculture and mining industries.

Source: Center for Business Research, College of Business, Arizona State University.

ECONOMIC GROWTH

County economic growth on an inflation-adjusted basis is shown in Table 1. In addition to total GCP growth, figures for adjusted GCP (omitting the highly variable agriculture and mining industries) are presented. In some counties, both measures must be used to garner an understanding of economic conditions.

During the entire 1970-86 period, statewide growth averaged just more than 5.5 percent per year. Navajo County's growth rate was the greatest because of a huge increase in its mining industry output (mostly coal). As seen by the large difference between total and adjusted growth, the mining surge did not spread through the rest of the economy. On an adjusted basis, the Phoenix area's growth was the fastest, barely exceeding that of Mohave County.

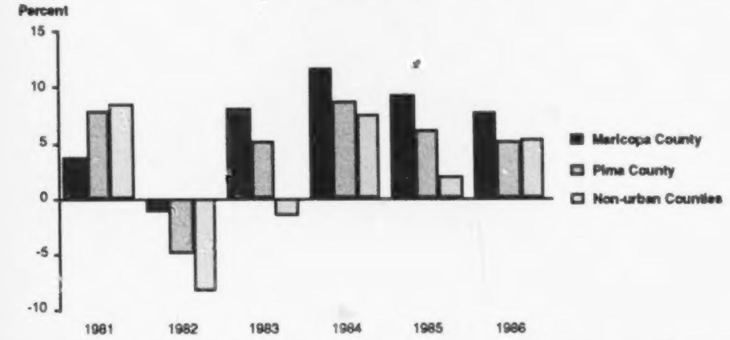
Four Arizona counties – Cochise, Gila, Graham, Greenlee – grew more slowly economically than the national average of roughly 3 percent per year, each due in large part to reductions in copper mining. Three more counties' growth barely exceeded 3 percent (Apache, Pinal, Santa Cruz).

In contrast, during the 1970s every county gross product but Cochise's grew at least 4 percent per year, though adjusted growth was weak in Pinal County and negative in Greenlee County. Economic growth in the Phoenix area was exceeded by three rural counties, even on an adjusted basis. The Tucson area's GCP growth ranked seventh.

During the 1980s, growth rates dropped sharply in every rural county except Cochise, whose gross product already was growing very slowly. In contrast, the Phoenix area's growth held steady. Because of mining problems, total growth in Pima and Pinal counties was slower than in the 1970s, despite faster growth in the adjusted measure.

Maricopa County's economic growth during 1980-86 far surpassed that of any other county; Pima County's rate was second. Among the non-urban counties, only Mohave and Yavapai experienced an economy expanding much faster than the national average. The mining-dependent counties of Gila, Graham and Greenlee suffered a declining economy.

FIGURE I
ANNUAL ECONOMIC GROWTH
Percent Change in Real GCP



Source: Center for Business Research, College of Business, Arizona State University

The last national recession ended in 1982, coincident with a major drop in the mining industry. In the first four years of the ensuing expansion, Maricopa County's GCP increased 42 percent. The average of the non-urban counties was only 14 percent, as lingering problems in mining and agriculture plagued most of them (see Figure I).

COUNTY HIGHLIGHTS

Apache County

Accounting for less than 1 percent of the state's gross product, the economy of Apache County depends heavily on government, which provided 34 percent of GCP in 1986. Growth slowed from about 4 percent per year in the 1970s to 2 percent annually in the 1980s. Its strongest period was from 1976-78, when a major power plant was under construction. Fast growth turned into a four-year recession from 1979-82; the economy declined again in 1985. The importance of agriculture slipped as its gross product declined, replaced by a fast-growing TCPU (transportation, communications and public utilities) industry from 1979-85.

Cochise County

The only years in which Cochise's economy expanded much more than 3 percent were in 1971 and 1978. Its growth during the 1970s was the slowest of all counties; it ranked higher in the 1980s only because of declines in other mining counties. Its GCP rose by a modest or small amount each year between 1983 and 1986. After providing a 21 percent share of Cochise's gross product in 1970, mining's portion had declined to 1 percent by 1986. TCPU, services and government all grew in importance. Government provided 44 percent of the 1986 gross product, with Fort Huachuca standing out as the reason for the particularly high share.

Coconino County

Very strong growth between 1971 and 1973 has not been repeated. Annual growth of 6 percent in the 1970s was cut in half in the 1980s. In the early 1970s, Coconino benefitted from the short-lived national phenomenon of moving from cities to smaller towns and rural areas; no single industry was responsible for its boom. Government makes up nearly one-third of the gross product; services, a growing sector, and trade, whose share is declining, also are important, particularly because of the area's tourism. Growth was moderately strong throughout the 1983-86 expansion.

Gila County

Though this county's share of GSP is less than 1 percent, its mining accounts for nearly 10 percent of the state's total. Mining's share of GCP dropped from 53 percent in 1970 to 31 percent in 1986. Manufacturing replaced mining's declining share in the 1970s, but its GCP fell between the late 1970s and 1986. After 5 percent annual growth in the 1970s, the economy declined at a 1 percent annual rate during 1980-86, with slow or negative growth spread through all industries. The mining boom of 1981 was completely wiped out in 1982-83. Further declines occurred in 1985-86.

Graham County

The problems of the mining and agriculture industries severely affected the economy of this county, with combined sectoral shares falling from 33 to 8 percent between 1970 and 1986. Every other industry but government experienced very slow growth, increasing government's share of GCP from 18 to 34 percent. But government is the third worst performing industry in the state, after mining and agriculture. GCP declined throughout the 1980s, even during the 1983-86 expansion. It accounted for only 0.3 percent of the state total in 1986.

Greenlee County

Greenlee's numbers are the most bizarre of any county. Essentially, it is dependent on one industry – mining – and just one company. In contrast to other mining counties where numerous copper mines closed, Greenlee's mines stayed open and production remained high, though employment plunged. The result was decimation of almost every industry but mining, whose share of GCP *increased* to 80 percent despite copper's problems. The adjusted GCP of this county has declined each year since 1974, except for slight growth in 1979-80.

Maricopa County

The Phoenix area's share of GSP ranged from 82 percent in FIRE to 16 percent in mining. Except for manufacturing, every industry's growth between 1970 and 1986 was faster than the state's average. The economy is diversified, with shares of both FIRE and services slowly climbing. The Phoenix area economy enjoyed double-digit growth in each expansion: 1972-73, 1977-78, 1984. Annual average growth was near 6.5 percent per year through the 1970s and 1980s. Growth during the 1983-86 expansion was at least 7.7 percent each year.

Mohave County

Mohave still ranks fourth, although growth rates between the 1970s and

1980s were cut from 7 to 3.5 percent – from faster than the Phoenix area to well below. Growth was especially strong between 1977 and 1979. Fast growth in manufacturing and TCPU increased their sectoral shares, at the expense of construction and mining. The result is a diversified economy, unlike that of most rural counties, with trade, services, manufacturing, FIRE, government and TCPU all having shares of between 11 and 20 percent in 1986.

Navajo County

Growth slowed between the 1970s and 1980s more dramatically in this county than in any but the three copper mining counties of Gila, Graham and Greenlee. Mining's share of GCP rose from 4 percent to 18 percent following very strong growth in 1971-78 and between 1980 and 1982. TCPU had an unusually large 1986 sectoral share at 22 percent. Except during 1984, growth was quite slow between 1979 and 1986.

Pima County

Economic growth was fastest between 1971 and 1973. After the mid-1970s, the Tucson area economy expanded far slower than that of the Phoenix area. In no year did GCP grow at double-digit rates. Between 1983 and 1986, GCP growth was just fourth fastest. Only during 1984 did growth much exceed the average of the 1970s. Through 1986, manufacturing and services gained in importance, replacing mining. Five industries – manufacturing, trade, FIRE, services and government – were roughly equal in size in 1986.

Pinal County

During the 1970s, mining and agriculture led Pinal's economy, growing more rapidly than the other sectors. The reverse was true between 1980 and 1986. Adjusted GCP growth swung from second slowest in the 1970s to second fastest in the 1980s, with exceptionally strong growth between 1984 and 1986. The big turnaround can be traced to large declines in the mining industry – its sectoral share dropped from 48 to 28 percent – and strong gains in construction and manufacturing. The latter, and government, particularly increased sectoral shares.

Santa Cruz County

The Santa Cruz economy, which contributed only 0.5 percent of the state's 1986 gross product, is unique in Arizona because it is heavily dependent on trade, particularly with Mexico. This sector's share, however, declined between 1970 and 1986, replaced by manufacturing, particularly the twin plants concept in which a firm locates a facility on both sides of the border. Government is the other large industry. The county's growth was especially strong in the early 1970s, but the annual average of the 1970s was less than the non-urban total, a condition reversed in the 1980s, though annual average growth still was mediocre at 2.7 percent.

Yavapai County

Yavapai's growth also was most rapid during the early 1970s, but its growth throughout the 1970s and 1980s was one of the fastest in the state. The county's economy is relatively diverse and stable, though mining's share has fallen a bit. Trade, services and government provide the largest portions of GCP. Except for a large decline in mining in 1984, Yavapai County's economy grew strongly during the 1983-86 expansion.

Yuma/LaPaz Counties

The economy of these counties is strongly influenced by agriculture and government, which together contributed nearly one-half of its 1986 GCP. Total growth exceeded adjusted growth in both the 1970s and 1980s; the total exceeded the non-urban average while adjusted GCP lagged behind. As in most rural counties, the growth rate during the 1980s was noticeably slower than during the 1970s, though 1986 in particular was a good year.

COMPARISON OF GCP TO OTHER MEASURES

Gross County Product captures elements of the economy not included in other measures. For example, employment statistics may show much different growth patterns.

The Center for Business Research created a simple county coincident index using only employment and unemployment rate. Annual growth rates from this measure were much different from those of GCP in all but the urban counties and Cochise County. Adding other indicators – retail sales and building permits in the case of the coincident indexes reported monthly – slightly reduces the error rate. For a comparison of GCP to the coincident economic indexes, see page 9.

– **Tom R. Rex**
Research Manager

Methodology

Calculations of Gross County Product are dependent on personal income estimates of earnings by industry, provided by the U.S. Department of Commerce, Bureau of Economic Analysis. By county, such data are available only annually and not until approximately 17 months after the end of the year. A further weakness in the series is that earnings by industry are not disclosed if the industry consists of few employers. The Center for Business Research estimated earnings in those situations.

Gross County Product estimates were calculated by a means identical to that used for Gross State Product; the sum of the county gross products equals GSP. Thus, GCP has the same shortcomings as GSP, which largely relate to indirect measurement. They may become more pronounced in a small area in which one or a few industries dominate. In particular, if the composition of one of the nine major industries is much different from the state average, the deflators used may be inappropriately weighted. This appears to be the case in Navajo County's mining industry, which largely mines coal rather than copper.

Gross products can be calculated by more than one method. In a coming issue of *Arizona Business*, results from two methods will be presented, by comparing the Center for Business Research's GSP figures to a new series just released by the U.S. Bureau of Economic Analysis. Extension of the findings to GCP will be made.

Coincident Indexes Decline Again in May

FIGURE I
COINCIDENT ECONOMIC INDEXES
Year-to-Year Percent Changes

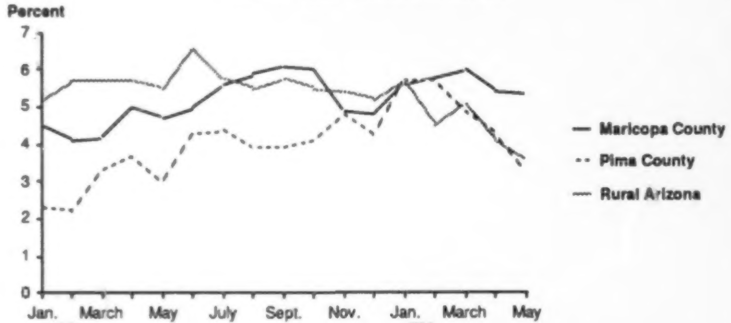
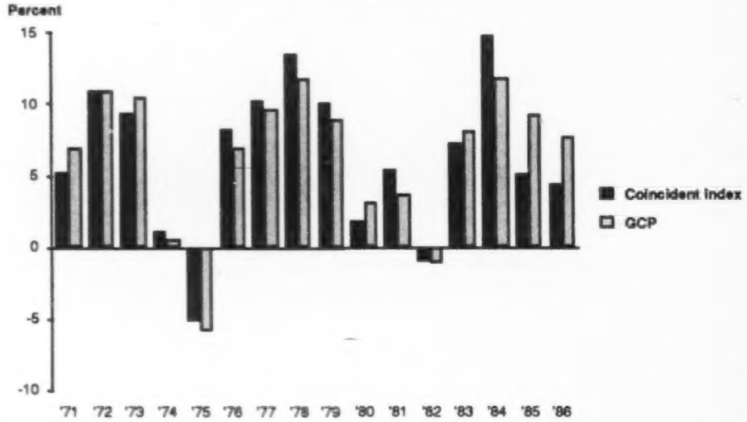


FIGURE II
COMPARISON OF COINCIDENT INDEX TO GROSS COUNTY PRODUCT
Annual Average Percent Change, Maricopa County



Source (Figures I and II): Center for Business Research, College of Business, Arizona State University

The economies of metropolitan Tucson and non-urban Arizona declined for the second consecutive month in May, while the Phoenix area economy expanded at a meager rate.

The coincident index for the Phoenix area rose 0.3 percent to a record 148.4 (1982=100). The index for the Tucson area fell 0.6 percent to 137.0 while the decline in rural Arizona was 0.2 percent, putting its index at 129.5.

Despite a rise in the unemployment rate, the economy in Maricopa County in May expanded because of gains in each of the other components. The advances in retail sales and employment were not large enough, however, to offset April's declines, and employment was no higher in May than in February. Commercial building permit valuations rose again; only one month since March 1986 was higher.

In Pima County, only the value of building permits rose in May, though its level still was very low historically. Employment fell to a level equal to that of last October.

Rural Arizona's building permit value also climbed, to its highest point since July 1986. Retail sales also increased, though not back to March's level. The unemployment rate, however, jumped back over 10 percent and employment fell to a level below that of last November.

Annual growth rates dropped sharply in May in Pima County and rural Arizona (see Figure I). Maricopa and Pima's rates were below their long-term averages, but non-urban Arizona's rate was slightly above its mediocre average.

Definite weakening in Arizona's economy occurred during the second quarter. Preliminary data suggest that the economies of both of the urban counties declined in June, though non-urban Arizona appears to have posted an economic gain.

Because of the gain in the Phoenix area economy in May, the composite statewide measure eked out a 0.1 percent advance to 143.2.

REVISION

In constructing a coincident or leading economic index, it is desirable to trend-adjust the series so that its annual average growth is equal to a rate that enhances interpretation of the index. Until the Gross County Product series were calculated, each of the coincident indexes were trend-adjusted by the same factor, used in the Arizona Trendline (coincident index) to match the 5.7 percent annual average rate of growth of Gross State Product. The figures reported in this article are the first in which each of the three indexes are trend-adjusted to their own average GCP growth rate.

The impact of this revision is minimal, with annual average growth in the coincident indexes rising 0.5 percent for Maricopa County, declining 0.2 percent for Pima County and falling 0.3 percent for non-metropolitan Arizona. Between 1974, when the coincident indexes begin, and 1986, when the GCP series end, annual average growth was 6.1 percent in the Phoenix area, 4.4 percent in the Tucson area, and 2.9 percent in rural Arizona.

COMPARISON TO GCP

The revised coincident indexes generally track GCP in annual growth rates, though the annual average difference is between 1.5 and 2 percentage points for each of the three areas. The comparison for Maricopa County is shown in Figure II. The largest differences occurred in 1984 through 1986, though the direction of change always matched (e.g., if the growth rate of the coincident index slowed, so did that of GCP).

– Tom R. Rex
Research Manager

Services and Trade Are Arizona's Largest Industries

TABLE 1
ARIZONA SECTORAL SHARES

	1987 Personal Income	1986 Total Employment	1987 Gross State Product
Services	23%	27%	17%
Trade	16	21	17
Government	18	16	13
Manufacturing	16	11	15
FIRE*	8	10	18
Construction	8	8	6
TCPU**	6	4	8
Agriculture	3	3	3
Mining	2	1	3

*Finance, Insurance and Real Estate
**Transportation, Communications and Public Utilities

Source: Center for Business Research, College of Business, Arizona State University and U.S. Department of Commerce, Bureau of Economic Analysis

TABLE 2
AVERAGE RANK ORDER OF NINE MAJOR INDUSTRIES

	Arizona	Maricopa County	Pima County	Non-urban Arizona
Services	1	1	1	3
Trade	2	2	4	2
Government	3	5	2	1
Manufacturing	4	3	3	4
FIRE*	5	4	6	9
Construction	6	6	5	6
TCPU**	7	7	7	5
Agriculture	8	8	9	8
Mining	9	9	8	7

*Finance, Insurance and Real Estate
**Transportation, Communications and Public Utilities

Source: Center for Business Research, College of Business, Arizona State University and U.S. Department of Commerce, Bureau of Economic Analysis

TABLE 3
ARIZONA'S TEN LARGEST INDUSTRIAL SUBSECTORS
Ranked by 1986 Employment

	Subsector	Industrial Division	Employment	Share
1.	State and Local Government	Government	184,483	10.9%
2.	Business Services	Services	104,859	6.2
3.	Eating and Drinking Places	Trade	98,754	5.8
4.	Health Services	Services	91,114	5.4
5.	Real Estate	FIRE*	90,259	5.3
6.	Special Trade Contractors	Construction	87,997	5.2
7.	Wholesale Trade	Trade	66,933	4.0
8.	Miscellaneous Retail**	Trade	49,456	2.9
9.	Food Stores	Trade	43,274	2.6
10.	Federal Government, Civilian	Government	41,718	2.5

*Finance, Insurance and Real Estate
**Includes retail establishments such as drug stores, liquor stores and used merchandise stores.

Source: Center for Business Research, College of Business, Arizona State University; from data of the U.S. Department of Commerce, Bureau of Economic Analysis.

Services remained Arizona's largest industry in 1987, followed by trade, government and manufacturing. However, between 1982, when the last recession ended, and 1987, construction and FIRE (finance, insurance and real estate) were the state's fastest growing industries, followed by services, trade and manufacturing.

The size rankings varied across Arizona's three major geographical divisions – metropolitan Phoenix, metropolitan Tucson, and the non-urban counties. Government, for example, is the largest industry in rural Arizona, but is only fifth largest in Maricopa County. In terms of growth, FIRE was only the fourth fastest growing industry in rural Arizona; services was the second fastest in the Phoenix area.

1987 INDUSTRIAL STRUCTURE

The sectoral shares of Arizona's nine major industrial divisions, defined by the Standard Industrial Classification (SIC), are provided in Table 1 for each of the three most important economic measures: employment, the earnings by industry portion of personal income (PI) and Gross State Product (GSP). (The latest year for which data are available varies from 1986 to 1987, depending on the source and geographic coverage).

Sectoral shares for an industry vary across measures because of factors such as level of wages, degree of labor intensivity, and profits. The broadest gauge, GSP, shows lower shares for government and services, but a higher share for FIRE, than the other measures. The yardsticks generally agree, however, that agriculture and mining are by far the smallest of Arizona's major industrial divisions.

Since the Phoenix area accounts for roughly two-thirds of Arizona's economic activity, its ranking of industries in Table 2 is similar to that of the entire state. In contrast, the ranking in non-urban Arizona is much different, with higher ranks for government, TCPU (transportation, communications and public utilities), and mining, and lower ranks for FIRE and services.

Tables 3 and 4 present Arizona's largest industrial subsectors, derived by dividing the SIC's nine major industrial divisions into more than 70 subsectors. Ranked by employment, four of the trade industry's subsectors place in the top 10. The two largest services subsectors, business and health, rank second and fourth. State and local government leads the lists, ranked both by employment and personal income. Because of the high pay in the manufacturing industry, two of its subsectors are among the top 10 ranked by personal income, but are not on the employment list.

Expanding the lists to the top 25 categories, trade and services dominate with 13 entries on the employment ranking and 10 on the PI ranking. Government, manufacturing, FIRE and construction each placed two or three subsectors on each list.

Compared to the top 10 rankings based on the previous year's data (1985), the ranking by personal income was little changed, but on the employment list, special trade contractors dropped two notches and food stores gained two places.

INDUSTRIAL GROWTH SINCE 1982

The rate of economic growth varied widely by industry during the 1982-87 expansion. The FIRE industry led with an average growth rate across the three measures shown in Table 5 of more than 50 percent. Growth was fairly tightly bunched among the next four industries – construction, manufacturing, trade and services – but government grew quite slowly while the mining industry declined.

While growth rankings varied geographically across the state (see Table 6), construction, FIRE and services were among the leaders in each area. Government and mining ranked near the bottom in each case.

The fastest growing subsectors over the 1982-86 period are shown in Tables 7 and 8. Ranking high on both lists were business services; real estate; special trade contractors; auto repair, services and ga-

TABLE 4
ARIZONA'S TEN LARGEST INDUSTRIAL SUBSECTORS
Ranked by 1986 Personal Income

	Subsector	Industrial Division	Personal Income*	Share
1.	State and Local Government	Government	$3,906	12.1%
2.	Health Services	Services	2,200	6.8
3.	Special Trade Contractors	Construction	1,890	5.9
4.	Wholesale Trade	Trade	1,624	5.0
5.	Business Services	Services	1,576	4.9
6.	Electric and Electronic Equipment	Manufacturing	1,235	3.8
7.	Federal Government, Civilian	Government	1,062	3.3
8.	Transportation Equipment, excluding Motor Vehicles	Manufacturing	1,021	3.2
9.	Banking	FIRE**	971	3.0
10.	Eating and Drinking Places	Trade	803	2.5

*In millions of dollars
**Finance, Insurance and Real Estate

Source: Center for Business Research, College of Business, Arizona State University; from data of the U.S. Department of Commerce, Bureau of Economic Analysis.

TABLE 5
ARIZONA GROWTH RATES, 1982-87

	Personal Income*	Wage & Salary Employment	Gross State Product*
Services	45%	53%	48%
Trade	43	32	50
Government	14	16	1
Manufacturing	50	20	65
FIRE**	68	48	4
Construction	43	60	42
TCPU***	31	24	46
Agriculture	51	NA	19
Mining	–16	–37	–29

*Inflation adjusted
**Finance, Insurance and Real Estate
***Transportation, Communications and Public Utilities

Source: Center for Business Research, College of Business, Arizona State University; U.S. Department of Commerce, Bureau of Economic Analysis; Arizona Department of Economic Security

TABLE 6
AVERAGE RANK ORDER OF 1982-87 GROWTH*

	Arizona	Maricopa County	Pima County	Non-urban Arizona
Services	3	2	4	3
Trade	4	4	6	5
Government	7	8	7	7
Manufacturing	5	5	5	2
FIRE**	2	3	2	4
Construction	1	1	1	1
TCPU***	6	6	8	6
Agriculture	8	9	3	8
Mining	9	7	9	9

*Based on 1982-87 employment, 1982-86 personal income and 1982-86 gross product
**Finance, Insurance and Real Estate
***Transportation, Communications and Public Utilities

Source: Center for Business Research, College of Business, Arizona State University

rages; security and commodity brokers and services; and general building contractors. Among these industries, the only ones to rate high on the size measures are business services, real estate and special trade contractors. The two latter industries, however, are highly cyclical – their growth rankings were much lower based on the 1980-85 period reported in the July 1987 issue of *Arizona Business*. Overall, the growth rankings are much different for 1982-86 than published last year.

While four manufacturing subsectors were among the ten fastest growing on the employment measure, none made the top 10 on the personal income measure. FIRE placed four, including the top three, on the PI listing, two of which were on the employment listing as well.

Services placed five subsectors among the top 15 on both lists. Manufacturing and FIRE accounted for most of the rest of the leading growth industries.

TABLE 7
ARIZONA'S TEN FASTEST GROWING INDUSTRIAL SUBSECTORS*
Ranked by 1982-86 Percent Change in Employment

	Subsector	Industrial Division	Percent Change
1.	Special Trade Contractors	Construction	89%
2.	Furniture and Fixtures	Manufacturing	85
3.	Business Services	Services	79
4.	Auto Repair, Services and Garages	Services	73
5.	Lumber and Wood Products	Manufacturing	72
6.	General Building Contractors	Construction	70
7.	Real Estate	FIRE**	66
8.	Security and Commodity Brokers and Services	FIRE**	60
9.	Stone, Clay and Glass Products	Manufacturing	53
10.	Transportation Equipment, excluding Motor Vehicles	Manufacturing	53

*With at least 4,000 employees in 1986
**Finance, Insurance and Real Estate

Source: Center for Business Research, College of Business, Arizona State University; based on data from the U.S. Department of Commerce, Bureau of Economic Analysis.

TABLE 8
ARIZONA'S TEN FASTEST GROWING INDUSTRIAL SUBSECTORS*
Ranked by 1982-86 Percent Change in Personal Income

	Subsector	Industrial Division	Percent Change
1.	Real Estate	FIRE**	241%
2.	Holding and Other Investment Companies	FIRE**	159
3.	Security and Commodity Brokers and Services	FIRE**	154
4.	Special Trade Contractors	Construction	109
5.	Business Services	Services	107
6.	Miscellaneous Services	Services	98
7.	General Building Contractors	Construction	97
8.	Auto Repair, Services and Garages	Services	97
9.	Legal Services	Services	92
10.	Banking	FIRE**	90

*With personal income of at least $100 million in 1986
**Finance, Insurance and Real Estate

Source: Center for Business Research, College of Business, Arizona State University; based on data from the U.S. Department of Commerce, Bureau of Economic Analysis.

ECONOMIC BASE ANALYSIS

In addition to direct measures of an industry's size, such as employment or gross product, other factors should be considered. Economic base theory assumes that certain industries are "basic" in that their growth leads and determines the region's overall development. Basic industries bring in money from outside the region by producing goods and services for export. In contrast, non-basic activities result from the region's overall growth, serving only the local population. Most of the major industries have both basic and non-basic elements.

The simplest means of identifying basic activities is by using a location quotient: the ratio of an industry's share of the regional economy to that industry's share of the national economy. While directly measuring the concentration of an industry relative to the national average, if the ratio is greater than one, a portion of the industry's output can be assumed to be basic (exported out of the region). While location quotients are crude measures, alternatives are prohibitively expensive.

Except in the agriculture and mining industries, location quotients from the three measures (employment, PI, gross product) do not vary much. They need to be carefully interpreted, however. For example, while metal mining, which provides most of Arizona's mining economic activity, is almost entirely a basic industry, other types of mining, such as oil and gas extraction, are nearly non-existent in the state. The entire mining industry, therefore, has little net exports with a location quotient of 1.06.

According to the location quotients shown in Table 9, construction is Arizona's most basic industry. Construction is "exported" in that houses and other buildings are frequently sold to parties living outside the state or to new residents.

FIRE has the second highest location quotient, though the basic component strictly is limited to the Phoenix area. Its "exports" largely result from real estate activity, again due to in-migration to the state.

Government has a location quotient greater than one, in part because of several large military bases and federal programs pertaining to national forests, national parks and Indian reservations. However, as described in the box on page 13, Arizona's state and local government sector, hardly an exporting industry, is relatively large.

Services and trade also have small basic components. Most of the "exports" of services relate to tourism and seasonal residents. Some of trade's exports also are sold to these groups; others are purchased by the state's new residents, who frequently need items such as autos and home furnishings.

The manufacturing industry is not a net exporter. In particular, the location quotient for non-durable goods is very low, with no subsector a net exporter. The durable goods portion of the industry, however, has a location quotient near one. Several of its subsidiary industries, particularly those involved with high-technology products, have basic components.

Exporting industries vary across Arizona. In Maricopa County, government and mining do not have location quotients exceeding one. Industries relying on net in-migration for their export component generally have a higher location quotient in the Phoenix area because of its more rapid population growth.

In non-urban Arizona, mining, agriculture and government all have large export segments, but construction's location quotient is lower because of the area's slower growth. TCPU is a basic industry because of the large power plants scattered across the state that serve the metropolitan areas.

– Tom R. Rex
Research Manager

Complete Report Available

This article is a summary of the report "The Economy of Arizona and Its Counties: Industrial Composition and Growth," which includes all information (most of which is updated) provided in the 1986 report "Arizona's Industrial Structure" and the 1987 supplement. The new report includes approximately 30 tables as well as narrative. A copy may be obtained for $5 from the Center for Business Research, College of Business, Arizona State University, Tempe AZ 85287-4406; (602) 965-3961.

TABLE 9
1986 LOCATION QUOTIENTS, AVERAGE OF PERSONAL INCOME, EMPLOYMENT AND GROSS PRODUCT

	Arizona	Maricopa County	Pima County	Non-urban Arizona
Services	1.01	1.05	1.11	.80
Trade	1.01	1.08	.92	.90
Government	1.06	.82	1.31	1.84
Manufacturing	.76	.83	.77	.45
FIRE*	1.14	1.28	.82	.42
Construction	1.55	1.60	1.59	1.24
TCPU**	.85	.89	.76	1.08
Agriculture	.95	.71	.55	3.07
Mining	1.06	.21	1.23	4.95

*Finance, Insurance and Real Estate
**Transportation, Communications and Public Utilities

Source: Center for Business Research, College of Business, Arizona State University, based on data from the U.S. Department of Commerce, Bureau of Economic Analysis

Arizona's Dependence on Government

Government accounts for a greater share of economic activity in Arizona than in the nation. This is particularly true in rural Arizona, where the location quotient exceeds 1.8. Government, however, has been a slow growing industry for many years. For example, between 1982 and 1987, only the mining and agriculture industries grew more slowly statewide.

More than 25 percent of the non-urban economy is tied to government with 40 percent accounted for by mining, agriculture and government. Each figure is more than twice the state's average. Thus, it is no surprise that the rural economy did so poorly in the 1980s.

The government sector is divided into three parts: federal civilian, military, and state and local. Every Arizona county except Greenlee and Maricopa have a location quotient greater than one in state and local government, with the highest ratios (greater than two) in Graham, Coconino, Pinal and Apache Counties. Ironically, even though Phoenix is the state capital, Maricopa County's ratio is only 0.9 (see Table below).

Federal civilian employment and economic contribution also is relatively high in most counties; only Pinal, Mohave, Greenlee and Maricopa have location quotients less than one. The ratio exceeds two in Cochise, Apache, Coconino, Yuma and Santa Cruz counties. Military has a strong presence only in Cochise, Yuma and Pima counties.

The heavy reliance on government, mining and agriculture likely equates to continued weak economic growth in many rural counties.

GOVERNMENT LOCATION QUOTIENTS
Based on 1986 Personal Income

	Arizona	Maricopa County	Pima County	Non-urban Arizona
Federal civilian	1.0	0.6	1.1	2.4
Military	1.1	0.7	1.4	2.8
State and Local	1.1	0.9	1.4	1.6

Source: Center for Business Research, College of Business, Arizona State University, based on data from the U.S. Department of Commerce, Bureau of Economic Analysis

GSP Growth Remains Moderate in First Quarter

The Arizona Gross State Product (GSP) expanded a near-average 1.5 percent during first quarter 1988, though growth in the year ending in the first quarter was a subpar 4.5 percent. The adjusted measure, which excludes the mining and agriculture industries and better tracks the economic cycle, grew less rapidly in the first quarter, but its growth between first quarter 1987 and first quarter 1988 equalled the 5.7 percent annual average (see Table 1).

GSP again was revised, due to changes in data produced by the federal government, particularly fourth quarter 1987 personal income and 1984-87 national income. These revisions reduced the seasonality problem apparent in the federal statistics (see the June 1987 and December 1987 issues of *Arizona Business*). Therefore, the Center for Business Research no longer is seasonally adjusting GSP a second time.

The result of the revisions was lower growth during 1987 than previously reported: only 3.7 percent for total GSP and 3.9 percent for adjusted GSP. After more than doubling the national growth rate between 1983 and 1986, GSP growth barely outpaced Gross National Product (GNP) during 1987 and remained nearly equal through first quarter 1988.

Problems in the construction industry largely were responsible for the slowing of growth in 1987 (from 6.9 to 3.7 percent), though the gross products of manufacturing, trade, government and FIRE (finance, insurance and real estate) also expanded less rapidly. The construction industry remained in a recession in first quarter 1988 while FIRE's growth rate remained low.

– **Tom R. Rex**
Research Manager

TABLE 1
REAL ECONOMIC GROWTH

	Quarterly Percent Change			**Annual Percent Change**		
		Adjusted			*Adjusted*	
	GSP	*GSP*	*GNP*	*GSP*	*GSP*	*GNP*
1st Quarter 1987	0.9	–0.4	1.1	2.5	3.3	1.5
2nd Quarter 1987	1.6	1.6	1.2	4.0	3.8	3.0
3rd Quarter 1987	1.0	1.2	1.1	4.7	4.3	3.9
4th Quarter 1987	0.3	1.8	1.5	3.8	4.4	5.0
1st Quarter 1988	1.5	0.9	0.8	4.5	5.7	4.8

Notes: Annual percent change compares gross product in a given quarter to that of the same quarter of the prior year. All data were revised.

Source: Gross State Product (GSP) and adjusted GSP (minus the contributions of the agriculture and mining industries) from Center for Business Research, College of Business, Arizona State University. Gross National Product (GNP) from U.S. Department of Commerce, Bureau of Economic Analysis.

July Purchasing Indicators Strong Despite Price Hikes

The Arizona economy continued to perform well in July, with all seven economic indicators again in the positive column. Lead time on vendor shipments, new orders received, production and employment all showed good strength. The only really negative note was that prices continued to go up at an uncomfortably high rate, as has been the case each month this year.

TABLE 1
JULY PURCHASING SURVEY

	Percent of Purchasing Managers Indicating Each Response (July compared to June)		
Key Indicators	*Higher*	*Same*	*Lower*
Prices paid for major commodities	50	48	2
Delivery time from vendors	36	60	4
Purchased materials inventory level	31	43	26
New orders received	43	32	25
Production	40	41	19
Employment	26	60	14
Purchases	40	32	28

Source: Purchasing Management Association of Arizona, Purchasing Management Association of Southern Arizona, and the Northern Arizona Group.

The Arizona economy likely will extend its marathon run into 1989, which will be year seven of the economic expansion. All the numbers look favorable, with consumer spending and capital investment fueling the economic growth. The expected gains in the second half may not match those of the first half of 1988, but they will be strong enough to maintain modest pressure on both prices and interest rates. However, interest rates will not rise fast enough to halt economic growth, and so the expansion will keep rolling along.

The price increases in each of the seven months so far in 1988 have been larger than in any month during the past five years (1982-1986), as a combination of growth in demand and a bumping up against capacity limits puts pressure on industrial prices. Inventory is well under control and poses no threat to further economic growth.

– **Harold Fearon**

Dr. Fearon is the National Association of Purchasing Management Professor in the ASU College of Business.

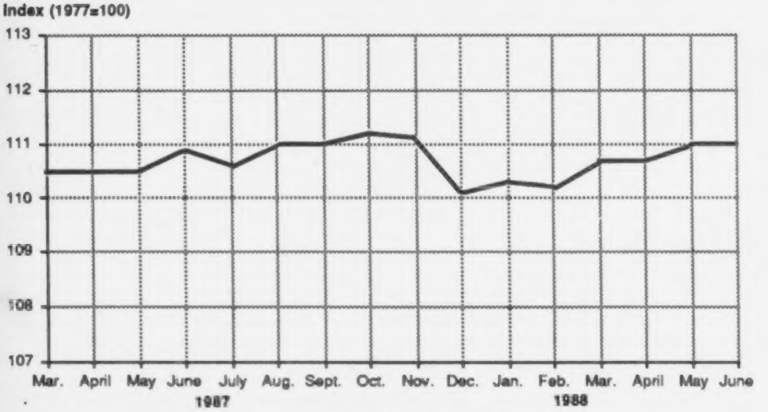
Arizona Leading Index Steady in June

The Arizona Index of Leading Economic Indicators held steady in June at 111.0 (see Figure I). The index is above the 110.9 June 1987 figure (1977=100), and very near the peak value of 111.2 achieved in October just before the stock market crash.

The index is based on 10 economic indicators, combined and weighted to project the pace of economic activity several months ahead. Five of the components come from a monthly survey of Arizona purchasing managers conducted by Dr. Harold Fearon. The Arizona Index of Leading Economic Indicators is sponsored by Citibank (Arizona).

Providing the biggest boost to the index was a drop in seasonally adjusted unemployment insurance claims. The money supply, sensitive prices, new orders, production and residential building permits were also positive influences. Delivery times, inventories, employment and average hours worked had a negative impact.

FIGURE I
ARIZONA INDEX OF LEADING ECONOMIC INDICATORS



Source: Economic Outlook Center, College of Business, Arizona State University; sponsored by Citibank (Arizona).

TABLE 1
NET CONTRIBUTION OF INDIVIDUAL COMPONENTS TO THE ARIZONA INDEX OF LEADING ECONOMIC INDICATORS

	Net Contribution+			
	Mar.	*Apr.*	*May*	*June*
Delivery Time*	–.09	–.03	.08	–.13
Inventory Levels*	–.02	–.06	–.08	–.06
New Orders*	.01	.04	–.07	.01
Production*	.06	.00	.04	.03
Employment*	.01	.00	.04	–.05
Residential Building Permits	.31	–.35	.38	.03
Unemployment Insurance Claims	.05	.21	–.23	.19
Average Workweek, Manufacturing	.07	–.02	.05	–.05
Money Supply	.11	.15	.02	.06
Change in Sensitive Materials Prices	.00	.02	.03	.03
OVERALL INDEX CHANGE (%)	.50	–.04	.26	.06

+The net contribution of each component is calculated by multiplying the monthly percent change in its index by its relative importance.

*Based on indicators from the purchasing management associations of Arizona and southern Arizona.

Source: Economic Outlook Center, College of Business, Arizona State University; sponsored by Citibank (Arizona).

COMPONENTS

Of the ten components of the Arizona Index of Leading Economic Indicators, eight are based on Arizona data and two are national indicators that also appear in the national Composite Index of Twelve Leading Indicators. These two national components are the money supply and a moving average of the change in sensitive materials prices.

Those interested in learning more about the characteristics of the national index are referred to the *Handbook of Cyclical Indicators* produced by the U.S. Department of Commerce, Bureau of Economic Analysis. The following discussion of sensitive materials prices draws heavily on that source.

The sensitive materials prices index is a combination of two price series: "Index of Spot Market Prices, Raw Industrial Materials" and "Producer Price Index, 28 Sensitive Crude and Intermediate Materials". Materials tracked by these series include: hides, rubber, rosin, tallow, tin, lead scrap, zinc, steel scrap, copper scrap, waste paper; and sand, gravel, and crushed stone.

Changes in the demand for these basic commodities are a good indication that in the months to come there will be a corresponding change in manufacturing output. In particular, increases in sensitive materials prices are associated with increases in the index of leading indicators. Large changes can also signal an overheating environment and emerging bottlenecks which could cause the Federal Reserve to sharply contract the economy.

OUTLOOK

An examination of the recent performance of the change in sensitive materials prices shows the economy still has the room it needs for continued expansion, although the demand for basic commodities is still strong. The lack of movement in the overall index suggest that the Arizona economy will continue on a steady course of very slow expansion over the next several months.

– **Tracy L. Clark,** *Economist*
Economic Outlook Center

ARIZONA ECONOMIC INDICATORS

	Month or Quarter	Value	Percent Change from Previous Period	Percent Change from Year Ago	Year-to-Date Value	Year-to-Date Percent Change from Year Ago
GROSS STATE PRODUCT						
(In Billions of Dollars, at Annual Rate)						
Arizona - Current Dollars	1st Qtr.	59.443	2.0	9.0	NA	NA
Arizona - 1982 Dollars	1st Qtr.	49.003	1.5	4.5	NA	NA
COINCIDENT ECONOMIC INDEXES						
(1982 = 100)						
Arizona	May	143.2	0.1	4.7	NA	NA
Metropolitan Phoenix	May	148.4	0.3	5.3	NA	NA
Metropolitan Tucson	May	137.0	–0.6	3.3	NA	NA
Non-urban Arizona	May	129.5	–0.2	3.6	NA	NA
CONSUMER PRICE INDEX (1982-84 = 100)						
Metropolitan Phoenix	2nd Qtr.	119.9	2.1	3.8	NA	NA
INDEX OF LEADING ECONOMIC INDICATORS (1977 = 100)						
Arizona	June	111.0	0.0	0.1	NA	NA
BUILDING PERMITS						
(Total Dollar Value in Thousands)						
Maricopa County	June	316,319	–15	0	1,755,115	–11
Pima County	June	52,741	31	12	273,673	–12
Balance of State	June	69,180	13	–26	324,983	–4
Arizona	June	438,240	–8	–4	2,353,771	–10
TOTAL HOUSING UNITS AUTHORIZED						
Maricopa County	June	2,690	33	32	12,182	–15
Pima County	June	637	95	48	3,307	–9
Balance of State	June	924	18	–38	4,751	–16
Arizona	June	4,251	36	7	20,240	–14
HOME SALES						
Maricopa County - Number	June	4,375	–18	–32	24,550	–17
Maricopa County - Median Price	June	80,650	2.0	0.0	79,725	0.9
HOUSING AFFORDABILITY INDEXES						
Metropolitan Phoenix - New Homes	2nd Qtr.	96	5.5	1.1	NA	NA
Metropolitan Phoenix - Resale Homes	2nd Qtr.	124	0.8	6.9	NA	NA
MORTGAGE INTEREST RATES						
(Conventional, 30-year, Fixed-rate)						
Maricopa County	July	10.4	0.0	3.0	NA	NA
POPULATION ESTIMATES						
(In Thousands)						
Maricopa County	2nd Qtr.	2,013	0.3	2.2	NA	NA
Arizona	2nd Qtr.	3,476	0.3	2.1	NA	NA
ELECTRICAL POWER SALES						
(In Millions of Kilowatt Hours)						
Arizona	June	4,202	17.9	11.1	20,065	8.7

NA = Not Applicable

Source: Center for Business Research, College of Business, Arizona State University

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Quarterly Economic Forecast Update

Slower Growth in Store for 1989

The Economic Outlook Center (EOC) expects the Arizona economy to continue moving forward at a slow pace through the remainder of 1988 and 1989. Reduced migration, a construction slump and subdued employment growth are among the factors contributing to the state's mediocre performance to date this year and will limit economic growth for the next several quarters.

In spite of an unexpectedly strong showing by the U.S. economy, Arizona has lagged far behind the rapid rate of growth observed during the 1983-1986 period. Although the decline of the construction industry has decelerated in recent months, building activity remains well below the levels seen at the height of the expansion.

While much of the negative economic news in the past originated in the less-developed parts of the state, several large employers in the Tucson and Phoenix areas have announced major layoffs in recent months. The firms affected span a wide range of industries, including manufacturing, health services, finance, real estate and utilities. The resulting changes in the business climate have cooled the prospects of the state's urban regions, which until recently had been among the nation's fastest-growing cities.

Although 1988 has been the weakest year for the Arizona economy since the 1981-1982 recession, 1989 may bring even slower growth to the state. Conditions may improve sufficiently to allow the construction sector to turn around, but a slowing national economy, accompanied by higher interest rates, may put the brakes on a recovery by the building industry until the early 1990s.

THE NATIONAL ECONOMY

The statistical evidence of the U.S. economy's performance compiled so far in 1988 has followed a familiar pattern. Preliminary estimates have tended to be better than expected; subsequent revisions, almost invariably positive, add further to the impressive record of the longest peacetime expansion in U.S. economic history. In spite of the age of the current business cycle, the economy has continued to surpass the projections of most analysts.

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ARIZONA
BUSINESS

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The biggest surprise has been the endurance of the American consumer, who was supposed to have spent himself into exhaustion long before now. After the October 1987 crash, the major downside risk to the U.S. economy in 1988 was the prospect of sharply curtailed consumption spending. Although spending dropped at an annual rate of 2.5 percent during fourth quarter 1987, it rebounded with a vengeance at the beginning of the new year.

Much of the reported strength in consumption has resulted from uncharacteristically high purchases of durable goods. Typically, during the later stages of a business expansion, spending on durables such as automobiles and appliances will wane as debt accumulates and consumer confidence ebbs. After faltering in the last quarter of 1987, consumption surged ahead at an annual rate of almost 4 percent early this year. The pace has slackened a little in recent months, but consumers have continued to make a large positive contribution to the nation's growth throughout the year.

The other principal source of robust domestic demand has been plant and equipment spending. After shaking off the financial jitters brought about by the crash last autumn, the U.S. industrial sector, in an unusual show of confidence, responded with gains in business fixed investment spending that should exceed 10 percent for all of 1988. Purchases of producer's durable equipment are up by about 13 percent, compared with an increase of about 3 percent in 1987.

There was widespread concern in midsummer when the Federal Reserve Board, apparently reacting to fears of renewed inflation, raised the discount rate from 6 to 6.5 percent. It is too early to determine whether this marked a move away from the spirit of accommodation that characterized Federal Reserve policy in recent years, but a pattern of rising interest rates probably will yield slower domestic demand growth during the rest of 1988 and 1989.

One consequence of the sustained growth of consumption has been a persistently large trade deficit. Rising demand has kept the volume of imports from shrinking as rapidly as expected, so the trade imbalance has not improved as much as the growth in exports would suggest. Although exports climbed by more than 12 percent in 1987 and should rise by more than 15 percent in 1988, the trade deficit has remained at more than $100 billion for several years. Even if the trade balance improves in the months ahead, it will be due to falling imports rather than to a surge in exports.

THE U.S. OUTLOOK

The EOC's forecast for the U.S. economy is summarized in Table 1.

TABLE :
1988 AND 1989 ECONOMIC FORECASTS: UNITED STATES

	Actual *1987*	Projected *1988*	Forecast *1989*
Gross National Product			
Billions of 1982 Dollars	3,847.0	3,998.1	4,075.4
Percent Change	3.4	3.9	1.9
Industrial Production			
Percent Change	3.8	5.5	2.6
Net Exports			
Billions of 1982 Dollars	–128.9	–97.3	–88.7
Housing Starts			
Number in Millions	1.63	1.45	1.37
Percent Change	–9.9	–10.5	–5.5
Unemployment Rate			
Percent	6.2	5.4	5.6
Consumer Price Index			
Percent Change	3.7	4.1	4.7
Three-Month Treasury Bill Rate			
Percent	5.8	6.6	7.0
Aaa Corporate Bond Rate			
Percent	9.4	9.9	10.1

Source: Economic Outlook Center, College of Business, Arizona State University.

The forecast—through the end of 1989, at least—does not feature a recession. However, it does envision a "soft landing" for the U.S. economy that could potentially become a recession as early as 1990. While a downturn is possible in 1989, the economy should have sufficient forward momentum to sustain growth through the end of the decade.

The predictions of rising interest rates made earlier in 1988 have proven to be essentially correct. Rates have increased slowly enough to prevent any major financial disruptions. With both short-term and long-term interest rates projected to continue their gradual ascent in 1989, the growth of the nation's industrial output should be somewhat slower than it was in 1987 and 1988. The home building industry also will be affected; housing starts, which totaled more than 1.6 million units in 1987, will average about 1.4 million units per year in 1988 and 1989.

Durable goods consumption also should be adversely affected by higher interest rates. New car sales, which have consistently surpassed a rate of more than 10 million per year since 1984, could slip below that pace by the end of 1989. The current boom in business spending, fueled by healthy increases in corporate profits, could be hindered as rising interest rates and inflation cut into profit margins and curb loan demand. Pressures to reduce the federal budget deficit also may limit the nation's economic growth rate in 1989. It is too early to predict the outcome of November's national elections, but it is likely that the new President and Congress will consider measures that will raise tax revenues or keep the growth of federal spending in check, either of which would tend to limit U.S. economic growth in 1989 and beyond.

Overall, real GNP is projected to grow by less than 2 percent in 1989, or about half the 3-percent-plus growth rate recorded during the last few quarters. Inflation will accelerate, but price increases should remain in the neighborhood of 5 percent per year. Food prices probably will rise more rapidly (mainly as a result of 1988's severe summer drought), but those increases will be offset somewhat by soft oil and gas prices and by continued modest gains in wages and salaries.

While net exports should show additional improvement in 1989, it will be due to falling imports. Slower growth in consumer spending, a byproduct of moderate income growth, inflation and rising interest rates, will help to reduce the nation's appetite for imported goods. Conversely, as the global economic expansion matures, foreign economies also will experience slower growth, diminishing the demand for American manufactured goods.

THE ARIZONA FORECAST

When IBM announced in late June it would phase out its manufacturing operations in Tucson by the end of 1989, it confirmed a disturbing recent trend in the Arizona economy. The state's manufacturing sector never shared in the nation's export boom to the extent many analysts had expected. More recently, Motorola announced it would eliminate 600 to 800 positions in its Phoenix-area facilities. Defense contractors such as Hughes Aircraft, McDonnell Douglas Helicopter and Allied-Signal were among other manufacturing firms that either laid off workers or postponed expansion plans in Arizona during 1988.

And the layoffs were not confined to the manufacturing sector. Samaritan Health Services, Arizona Public Service Company, Dell Webb Corporation, Circle K Corporation and Valley National Bank are some of the major corporate employers that have trimmed their payrolls in 1988. The job reductions are symptomatic of two trends: large employers in many regions and industries are attempting to become more profitable by reducing costs, and many firms are being forced to cut back employment in response to Arizona's slowing growth rate.

Tables 2 and 3 summarize the Economic Outlook Center's forecasts for Arizona and Maricopa County, while Table 4 provides an industrial breakdown of the employment forecast for the state. In general, the forecast revisions reflect the continued weakness of construction activity, particularly in the Phoenix metropolitan area. Employment growth is expected to stay positive overall, although job losses are likely to continue in the construction and finance, insurance and real estate (FIRE) industries.

TABLE 2
1988 AND 1989 ECONOMIC FORECASTS: ARIZONA

	Actual *1987*	Projected *1988*	Forecast *1989*
Gross State Product			
Millions of 1982 Dollars	47,746	49,662	51,465
Percent Change	3.7	4.0	3.6
Personal Income			
Millions of Current Dollars	48,466	51,960	55,188
Percent Change	8.0	7.2	6.2
Retail Sales			
Millions of Current Dollars	18,001	19,024	20,038
Percent Change	4.7	5.7	5.3
Unemployment Rate			
Percent	6.3	6.0	6.5
Wage and Salary Employment			
Number in Thousands	1,383.7	1,424.9	1,461.9
Percent Change	3.4	3.0	2.6
Population			
Number in Thousands	3,405	3,476	3,550
Percent Change	3.1	2.1	2.1
Single-Family Units Permitted			
Number	27,360	22,690	20,100
Percent Change	−19.7	−17.1	−11.4
Multifamily Units Permitted[1]			
Number	12,038	7,900	6,660
Percent Change	−55.4	−34.4	−15.7

[1] Apartment complexes of three or more units

TABLE 3
1988 AND 1989 ECONOMIC FORECASTS: MARICOPA COUNTY

	Actual *1987*	Projected *1988*	Forecast *1989*
Consumer Price Index			
Percent Change	4.1	4.5	5.3
Retail Sales			
Millions of Current Dollars	11,743	12,432	13,115
Percent Change	3.5	5.9	5.5
Unemployment Rate			
Percent	5.2	5.1	6.0
Wage and Salary Employment			
Number in Thousands	912.7	939.2	964.5
Percent Change	3.4	2.9	2.7
Population			
Number in Thousands	1,970	2,013	2,056
Percent Change	3.6	2.2	2.1
Single-Family Units Permitted			
Number	18,012	14,910	13,320
Percent Change	−24.5	−17.2	−10.7
Multifamily Units Permitted[1]			
Number	9,106	5,950	5,100
Percent Change	−50.3	−34.7	−14.3

[1] Apartment complexes of three or more units

Source (Tables 2 and 3): **Economic Outlook Center, College of Business, Arizona State University.**

As defense spending reductions and corporate reorganizations take their toll, Arizona's manufacturing industry will remain relatively stagnant. Unless the vitality of the U.S. industrial sector soon spreads to Arizona, total manufacturing employment in the state may fall in 1989.

Construction

Although construction employment showed a small improvement during the summer months, the gains did not match the seasonal increases usually observed. As the industry has struggled to break free from the slump it has been mired in since the second quarter of 1986, a pattern of lackluster growth has spread to other industries.

Figure I illustrates the rise and fall of construction employment during the current economic expansion and the related employment growth in the FIRE industry through second quarter 1988. While construction activity peaked in Arizona in June 1986, the financial sector kept expanding. Legislation which allowed out-of-state institutions to set up shop in Arizona became effective in October 1986 and the industry grew very rapidly through most of 1987.

Employment reached a peak in November 1987 (just a few weeks after the stock market crash) and has been sliding steadily since then. Construction and FIRE were the biggest contributors to the state's mid-1980s economic boom, so it is not surprising that the aggregate growth rate of gross state product (GSP) fell substantially when these industries faltered.

Housing starts (as measured by number of units authorized) are projected to decrease again in 1989, but the rate of decline will be less severe than in 1987 and 1988. In the Phoenix area, single-family housing starts, which were in the 18,000 to 20,000 range as recently as 1986, are projected to decline to a rate of about 13,300 units per year. The job losses observed in construction and FIRE in 1988 should diminish and reach bottom by the end of 1989.

Population

Slower population growth has been both a cause and effect of the sharp reduction apparent in Arizona's economic growth rate. Maricopa County, home to more than 2 million of the state's 3.5 million residents, was the major beneficiary of the massive employment and population gains that occurred in the 1970s and 1980s. Figure II shows the relationship between job creation and population growth in the Phoenix area during the last two decades. When large numbers of job opportunities were being created in the early stage of each business cycle, a bulge in the rate of migration to the area soon followed. As each cycle began to wind down, high levels of migration would persist for a year or two before the rate of population growth slowed.

In 1983 and 1984, thousands of construction jobs were spun off by the Phoenix area's building boom. Manufacturing employment also swelled, largely in response to the increased federal spending on defense equipment. Waves of job seekers soon inundated the region, creating new job opportunities in population-serving industries such as retail trade, medical services and government.

The population surge was amplified by the plunge in oil prices that choked off growth in cities such as Houston and Denver, which usually vie with Arizona for new residents. However, when building activity slowed and construction jobs started to disappear two years ago, the stage was set for the reduced migration flows we are seeing today.

The Center for Business Research (CBR) at ASU estimated that net migration to Maricopa County was about 1,000 in second quarter 1988, down from an average of more than 20,000 per quarter from 1984 to 1986. The population forecasts have been trimmed to account for the slower flow of new residents. The EOC projects population gains slightly exceeding 2 percent per year for Maricopa County and Ari-

TABLE 4
ARIZONA EMPLOYMENT FORECASTS
FOR 1988-1989 (thousands)

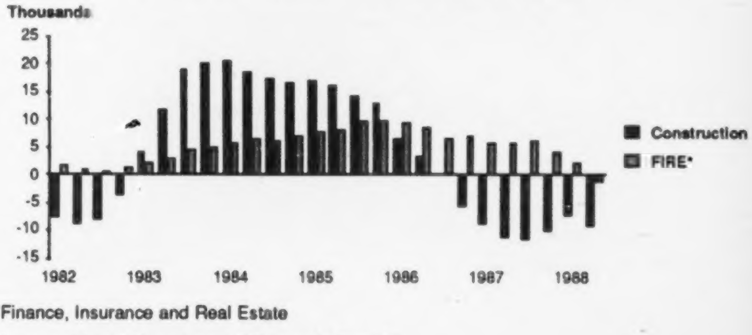
	1987	Percent Change	1988	Percent Change	1989	Percent Change
Manufacturing	187.2	1.4	189.3	1.1	189.0	–0.2
Mining	11.4	3.6	12.1	6.1	12.5	3.3
Construction	102.4	–9.5	94.4	–7.8	92.8	–1.7
TCPU*	72.0	9.3	73.9	2.6	76.6	3.7
Trade	339.5	4.3	354.7	4.5	367.1	3.5
FIRE**	94.4	6.2	93.6	–0.8	94.2	0.6
Services	343.9	6.2	364.9	6.1	381.0	4.4
Government	232.9	3.5	242.0	3.9	248.7	2.8
Total Wage and Salary Employment	1,383.7	3.4	1,424.9	3.0	1,461.9	2.6
Total Employment	1,513.0	3.4	1,545.0	2.1	1,589.0	2.8
Total Unemployment	101.0	–7.3	98.0	–3.0	110.0	12.2
Labor Force	1,614.0	2.7	1,643.0	1.8	1,699.0	3.4
Unemployment Rate	6.3		6.0		6.5	

*Transportation, Communications and Public Utilities

**Finance, Insurance and Real Estate

Source: Economic Outlook Center, College of Business, Arizona State University.

FIGURE I
ARIZONA EMPLOYMENT – CONSTRUCTION AND FINANCE
First Quarter 1982 through Second Quarter 1988
(Net Change from Same Quarter One Year Earlier)



*Finance, Insurance and Real Estate

Source: Arizona Department of Economic Security.

zona during the forecast period. While this is roughly half the growth rate of the mid-1980s, it still is about twice the national average.

Employment

Employment is projected to advance by an average of 3 percent in Arizona this year and by 2.6 percent in 1989. The problems experienced by the construction, finance and manufacturing industries, along with the aforementioned reduction in migration, are largely responsible for preventing the state economy from growing at its customary rate.

The layoffs announced by IBM and Motorola earlier this year suggest that the formerly bright prospects for Arizona's manufacturing sector may not be realized. If the U.S. economy defies expectations and continues expanding unabated into the 1990s, then the chances are very good that the state's advanced technology sector will fare better than the forecast suggests.

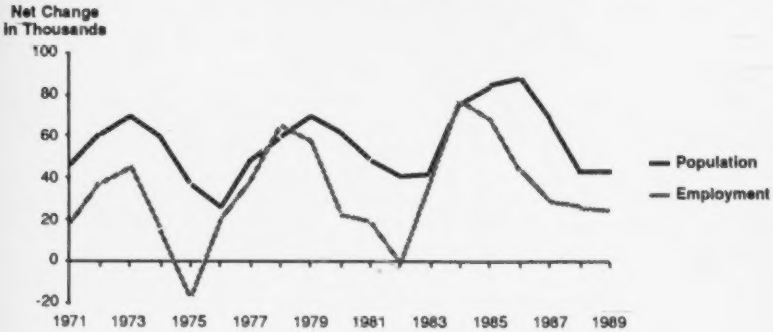
Personal Income

In August, the Bureau of Economic Analysis released revised estimates of state personal income for 1986 and 1987. Arizona personal income increased by 8 percent in 1987, significantly more than the 6.2 percent gain reported last April. On a per capita basis, personal income in the state averaged $14,315, up 4.6 percent over 1986 but about $1,166 below the national average.

With employment growing very slowly or decreasing in several key industries (finance, manufacturing and construction) and with slower population growth, Arizona personal income is projected to advance by 7.2 percent in 1988 and by just 6.2 percent in 1989, the lowest rate of income growth for the state since the recession year 1982, when state personal income rose by 5 percent. If the forecast proves to be correct, the state budget deficit that developed during the last two fiscal years may be repeated again in 1989. Retail sales growth, another major source of state tax revenues, is expected to increase relative to 1987 but will remain modest through 1989.

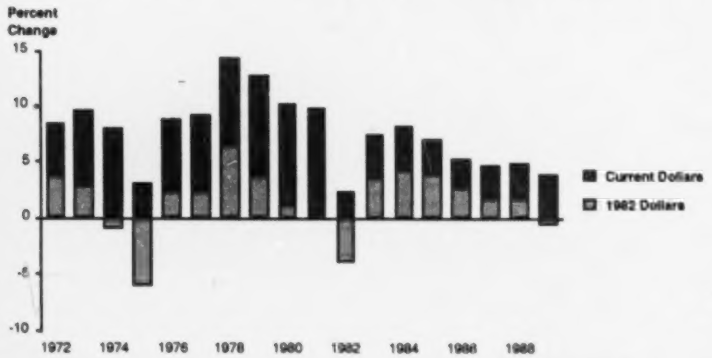
Figure III illustrates the actual and projected growth of Arizona per capita personal income. Much of the apparent gain in personal income (and in retail sales) in the forecast period will be generated by higher inflation. After adjusting for anticipated price increases, real per capita personal income may actually fall in 1989. Regardless, unless the employment situation improves dramatically in the months ahead, income growth is expected to be modest compared to recent experience.

FIGURE II
MARICOPA COUNTY EMPLOYMENT GROWTH AND POPULATION FLOWS
1971-89
Annual Change In Thousands



Source: Economic Outlook Center, College of Business, Arizona State University.

FIGURE III
ARIZONA REAL PER CAPITA PERSONAL INCOME GROWTH



Source: Economic Outlook Center, College of Business, Arizona State University.

SUMMARY

To place the forecast in proper context, it should be noted that Arizona's growth prospects remain very strong in comparison to most regions of the country. While the state's growth may not match that of states such as California, Washington and Nevada, it likely to be significantly stronger than in neighboring states such as Colorado, New Mexico and Utah.

Chances for better-than-expected economic growth depend on the ability of the U.S. economy to expand in 1989 at least as well as it has in 1988. Or, if Arizona were fortunate enough to be selected as the preferred site for the ballyhooed superconducting supercollider, its economy would stand to reap enormous benefits.

Should the national economy begin a descent into recession in late 1988 or 1989, the Arizona economy will not grow as strongly as these forecasts would indicate. However, the chance of a recession occurring before 1990 is small, so the Arizona economy should keep moving forward—although slowly—through the end of 1989.

– **Brian Cary,** *Economist*
Economic Outlook Center

Arizona Leading Index Increases in July

The Arizona Index of Leading Economic Indicators rose to 111.1 in July after holding steady at a revised 110.9 in May and June, to a point slightly above the 110.6 July 1987 figure (1977 = 100).

Providing the biggest boost to the index was an increase in seasonally adjusted inventories of purchased materials held by Arizona producers. Delivery times, new orders, employment, sensitive prices and production were also positive influences. Residential building permits, the money supply and manufacturing hours worked had a negative impact. Unemployment insurance claims were unavailable at the time the index was computed.

PERFORMANCE

Evaluation of the performance of the Index of Leading Indicators is necessary from time to time to detect whether revisions in the components and their weightings may be needed.

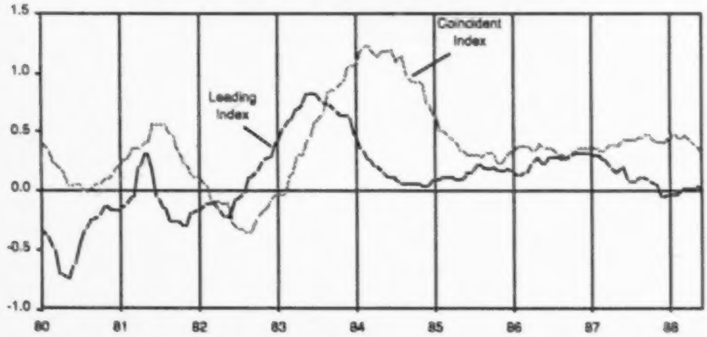
The two criteria to be considered are (a) timing and (b) direction. Ideally, the Index of Leading Indicators would move before other economic indicators and in the proper direction, with no false signals.

Figure 1 compares the movement of the Index of Leading Indicators with the index of coincident indicators produced by the Center for Business Research (see article this issue) from 1980 to the present. The coincident index provides a measure of current economic activity broader than a specific variable such as employment.

The raw indexes were converted to a percentage change basis to make them more directly comparable. A twelve month moving average was calculated for each percentage change series in order to smooth out minor variations.

The graph shows four clear instances of changes in the direction of the coincident index preceded by similar changes in the leading index. In mid-1980 and mid-1982, the leading index moved upward and a similar movement in the coincident index followed shortly after. In 1981 and 1983, the leading index correctly signaled a cooling economy. Correlation analysis shows that the warning period of a change in the direction of the economy is about four to eight months.

FIGURE I
ARIZONA LEADING INDEX PERFORMANCE
12 Month Moving Average of Percent Change



Source: Economic Outlook Center and Center for Business Research, College of Business, Arizona State University; sponsored by Citibank (Arizona).

TABLE 1
NET CONTRIBUTION OF INDIVIDUAL COMPONENTS TO THE ARIZONA INDEX OF LEADING ECONOMIC INDICATORS

	Net Contribution*			
	Apr.	*May*	*June*	*July*
Delivery Time*	–.03	.08	–.13	.13
Inventory Levels*	–.06	–.08	–.06	.17
New Orders*	.04	–.07	.01	.08
Production*	.00	.04	.03	.01
Employment*	.00	.04	–.05	.05
Residential Building Permits	–.35	.38	.03	–.23
Unemployment Insurance Claims	.21	–.23	.19	.00
Average Workweek, Manufacturing	–.02	.05	–.09	–.05
Money Supply	.15	.02	.06	–.05
Change in Sensitive Materials Prices	.02	.02	.03	.02
OVERALL INDEX CHANGE (%)	–.05	.25	.01	.13

*The net contribution of each component is calculated by multiplying the monthly percent change in its index by its relative importance.

*Based on indicators from the purchasing management associations of Arizona and southern Arizona.

Source: Economic Outlook Center, College of Business, Arizona State University; sponsored by Citibank (Arizona).

OUTLOOK

Although sharp movements in the leading index gave clear signals of the course of the economy in the early years of the 1980s, the path of the index in the past year has been more difficult to interpret. The index declined during 1987, but did not show the negative readings associated with recession. Meanwhile, the coincident index has been relatively sluggish, reflecting a slowing economy. The leading index indicates that the Arizona economy will continue to experience very slow growth over the next several months. There is little evidence to suggest a significant increase in activity in the remainder of this year.

– **Tracy L. Clark,** *Economist*
Economic Outlook Center

The Arizona leading index is based on 10 economic indicators, combined and weighted to project the pace of economic activity several months ahead. Five of the components come from a monthly survey of Arizona purchasing managers conducted by Dr. Harold Fearon. The Arizona Index of Leading Economic Indicators is sponsored by Citibank (Arizona).

Construction Takes Positive Jump in Second Quarter

After a slow first quarter 1988, construction in Arizona rebounded sharply during the second quarter. Total new construction was valued at nearly $1.4 billion (22,926 permits), a 36 percent improvement over the $1 billion (20,498 permits) reported for the first quarter. This stronger activity was especially evident in the apartment and retail sectors (see Table 1).

Maricopa County, with a 44 percent increase over the first quarter ($723 million to $1 billion), again dominated the state with 75 percent of the total recorded valuation. Pima County usually accounts for 15 percent of the state's permitted activity, but with only $137 million in new construction, its second quarter share declined to 10 percent. Led by increases in the single-family and retail sectors, total construction value in the rest of Arizona rose from $151 million in the first quarter to the current level of $202 million, representing 15 percent of the state's permitted activity.

Over 85 percent of the state's recorded construction in the second quarter occurred in twelve areas (see Table 2). While the only nonmetropolitan area on the list is unincorporated Yavapai County, several other non-urban areas reported increases, including Lake Havasu City ($13 to $17 million), Casa Grande ($8 to $13 million), and Flagstaff ($10 to $16 million).

SECTORAL ACTIVITY

Residential

Although mortgage interest rates increased from 10 to 10.5 percent during the second quarter, single-family permits in Maricopa County climbed 11 percent over the first quarter (3,783 to 4,347 homes). While the number of permits is down 17 percent from a year ago (see Table 3), the average permit value increased over the year from $89,600 to $95,900; most of the activity was in the higher priced move-up market. Two cities reported improvement over the year: Chandler (244 to 288 homes) and Gilbert (303 to 406 homes).

Single-family construction improved in Pima County in the second quarter 1988 (811 to 991 permits), but is well below a year ago (1,147 homes). Unincorporated areas accounted for 71 percent of Pima County's permits (707 homes); only 19 percent (185 homes) were located in Tucson. This sector was also strong in Oro Valley (98 homes).

Permits in non-urban Arizona increased over the first quarter (1,168 to 1,428 permits), but still lagged a year ago (1,547 permits). Strong single-family activity during the quarter was reported by Lake Havasu City (176 homes), Prescott (84 homes), and Flagstaff (75 homes).

Commercial

Contrary to expectations, the apartment sector in Maricopa County had 2,888 newly authorized units, well above the 629 units of the first quarter and the highest level since third quarter 1987 (3,324 units). Most of the permits were issued in Phoenix (787 units) and Scottsdale (664 units), followed by Chandler (440 units), Gilbert (323 units) and Glendale (380 units).

In contrast, apartment activity in Pima County declined significantly from the first quarter (1,037 units to 397 units). In the rest of Arizona, the apartment sector increased from only 79 units to 190 units in the second quarter, above last year's level of 140 units, led by Flagstaff (72 units), Lake Havasu City (59 units), and Prescott (40 units).

New retail development achieved a record $135 million in Maricopa County in second quarter 1988. Phoenix led with $78 million, includ-

TABLE 1
KEY SECTOR CONSTRUCTION ACTIVITY
(Second Quarter 1988, First Quarter 1988, and Second Quarter 1987)

			COMMERCIAL							
	SINGLE FAMILY		APARTMENTS[a]		OFFICE BUILDINGS[b]		RETAIL STORES[c]		INDUSTRIAL	
	Number of Permits	*Dollar Value (000)*	*Number of Units*	*Dollar Value (000)*	*Number of Permits*	*Dollar Value (000)*	*Number of Permits*	*Dollar Value (000)*	*Number of Permits*	*Dollar Value (000)*
Maricopa County										
Second Quarter, 1988 ...	4,347	413,813	2,888	138,715	61	70,289	231	134,766	32	14,573
First Quarter, 1988	3,783	343,503	629	29,546	47	25,772	178	70,649	41	16,111
Second Quarter, 1987 ...	5,217	467,638	1,264	50,191	90	165,161	183	63,579	72	45,474
Pima County										
Second Quarter, 1988 ...	991	68,616	397	15,094	20	5,570	14	1,331	10	5,738
First Quarter, 1988	811	58,068	1,037	32,566	34	3,627	14	4,372	3	601
Second Quarter, 1987 ...	1,147	73,436	238	8,058	13	4,105	23	15,244	14	2,776
Rest of Arizona										
Second Quarter, 1988 ...	1,428	98,200	190	5,513	36	3,434	81	27,855	22	2,442
First Quarter, 1988	1,168	73,069	79	2,805	31	5,838	68	14,314	11	11,222
Second Quarter, 1987 ...	1,547	97,291	140	3,260	33	4,436	61	10,065	18	1,765
Arizona Total										
Second Quarter, 1988 ...	6,766	580,629	3,475	159,322	117	79,293	326	163,962	64	22,753
First Quarter, 1988	5,762	484,446	1,745	64,917	105	44,497	260	89,335	55	27,934
Second Quarter, 1987 ...	7,911	638,365	1,642	61,536	136	173,702	267	88,888	104	50,017

[a] Five or more housing units

[b] Office, bank, medical and professional buildings

[c] Shopping centers and other mercantile buildings

Source: Arizona Real Estate Center and Center for Business Research, College of Business, Arizona State University.

TABLE 2
REPORTING UNITS WITH GREATEST TOTAL VALUE OF BUILDING PERMITS
Second Quarter, 1988

Reporting Unit	Value (in millions)
Phoenix	$396
Scottsdale	197
Mesa	97
Unincorporated Maricopa County	78
Unincorporated Pima County	73
Gilbert	60
Tucson	57
Chandler	56
Glendale	52
Tempe	47
Peoria	35
Unincorporated Yavapai County	29

Source: Arizona Real Estate Center and Center for Business Research, College of Business, Arizona State University.

ing a single permit for $20 million. Retail development in Pima County dropped to only $1.3 million, but was quite strong in the non-metropolitan areas, especially Yuma (9 permits, $4 million), Flagstaff (6 permits, $2 million), Lake Havasu City (2 permits, $2 million) and Show Low (2 permits, $2 million).

While still behind the recorded activity of a year ago ($165 million), the office building sector in Maricopa County jumped from last quarter's $26 million to $70 million. With one permit worth $34 million, Phoenix was the leader at $44 million (24 permits), followed by Scottsdale ($20 million, 8 permits including one valued at $17 million). In Pima County, Tucson reported 13 office building permits totalling $3.9 million, two of which accounted for $2.5 million. No office building activity over $1 million was reported in the rest of Arizona.

Total statewide hotel/motel permits declined from $14 million in the first quarter to $8.6 million in the second quarter, but the number of new rooms increased from 247 to 367. Phoenix reported $6 million and unincorporated Yavapai County had one permit worth $1 million. No new activity was recorded in Pima County.

TABLE 3
ARIZONA HOUSING UNITS AUTHORIZED
Second Quarter 1988

	One Family	*Mobile Homes*	*Duplex*	*3-4 Family*	*5 or More*	*Total*
APACHE COUNTY	20	19	0	0	0	39
Percent Change, Previous Year	−81	−49	—	—	—	−66
Percent Change, Previous Qtr.	150	217	—	—	—	179
COCHISE COUNTY	113	12	0	0	0	125
Percent Change, Previous Year	−15	−91	—	—	—	−56
Percent Change, Previous Qtr.	26	−33	—	—	—	16
COCONINO COUNTY	176	105	16	24	72	391
Percent Change, Previous Year	−21	3	167	—	−84	−51
Percent Change, Previous Qtr.	23	94	167	700	—	81
GILA COUNTY	63	65	0	0	0	128
Percent Change, Previous Year	−9	0	—	—	—	−6
Percent Change, Previous Qtr.	5	33	—	—	—	−14
GRAHAM COUNTY	19	68	0	0	0	87
Percent Change, Previous Year	27	48	—	—	—	43
Percent Change, Previous Qtr.	6	21	—	—	—	18
GREENLEE COUNTY	0	0	0	0	0	0
Percent Change, Previous Year	—	—	—	—	—	—
Percent Change, Previous Qtr.	—	—	—	—	—	—
LA PAZ COUNTY	5	46	0	0	0	51
Percent Change, Previous Year	400	171	—	—	—	183
Percent Change, Previous Qtr.	−38	−12	—	—	—	−15
MARICOPA COUNTY	4,347	127	46	86	2,888	7,496
Percent Change, Previous Year	−17	−61	667	110	128	8
Percent Change, Previous Qtr.	15	−44	44	380	309	56
MOHAVE COUNTY	361	247	4	0	65	677
Percent Change, Previous Year	21	34	—	—	−45	9
Percent Change, Previous Qtr.	30	−23	−33	—	117	3
NAVAJO COUNTY	93	38	0	0	0	131
Percent Change, Previous Year	−31	9	—	—	—	−26
Percent Change, Previous Qtr.	107	6	—	—	—	62
PIMA COUNTY	991	21	12	8	397	1,427
Percent Change, Previous Year	−14	−46	−45	−60	67	−2
Percent Change, Previous Qtr.	32	17	50	0	−42	−24
PINAL COUNTY	84	59	0	0	0	143
Percent Change, Previous Year	−4	−64	—	—	—	−33
Percent Change, Previous Qtr.	−8	−67	—	—	—	−38
SANTA CRUZ COUNTY	35	0	0	6	0	41
Percent Change, Previous Year	−74	—	—	—	—	−71
Percent Change, Previous Qtr.	0	—	—	100	—	−71
YAVAPAI COUNTY	372	151	8	30	40	601
Percent Change, Previous Year	−3	30	300	−66	150	−1
Percent Change, Previous Qtr.	19	32	100	233	344	34
YUMA COUNTY	89	108	0	0	13	210
Percent Change, Previous Year	71	125	—	—	—	110
Percent Change, Previous Qtr.	6	−41	—	—	—	−21
TOTAL, ARIZONA	6,768	1,066	86	154	3,475	11,547
Percent Change, Previous Year	−15	−19	130	−2	66	0
Percent Change, Previous Qtr.	17	−29	84	258	99	27

Note: A dash indicates that a percent change could not be calculated because at least one period had no activity.

Source: Center for Business Research, College of Business, Arizona State University.

Industrial

While Maricopa County continued to dominate industrial development (65 percent of all recorded activity), its $14.6 in new projects was down from the first quarter's $16 million and well below the $45 million reported for second quarter 1987. Over 95 percent of the activity was in Phoenix (18 permits, $8.9 million) and Tempe (9 permits, $5.2 million).

In contrast, Pima County's industrial permit value increased from less than $1 million for the first quarter to $5.7 million, well above the $728,000 reported a year ago. Unincorporated Pima County had 2 permits worth a total of $3.3 million and Tucson's 6 permits totalled $1.9 million. No area in the non-metropolitan counties issued permits in excess of $1 million.

Other

Construction of educational facilities continued to lead this diverse sector, with second quarter projects valued at $56 million, in contrast to first quarter's $23 million. Phoenix issued one educational permit for $24 million. New health care facility development remained strong at more than $21 million; Scottsdale issued one permit for $12 million.

LOOKING AHEAD

Although construction activity improved during the second quarter, the year-to-date total of $2.4 billion is still below the $2.6 billion recorded during the first half of 1987. Further, this quarterly improvement was not evident in all sectors, in the number of projects, or throughout the state. Much of the increase, located in Maricopa County, was based on a few major projects and an unexpected surge in multifamily development. Seven of the permits issued in Maricopa County, or 13 percent of all permits in the county, totalled $137 million, a value equal to all of the permitted activity in Pima County in the second quarter.

Apartment development in metropolitan Phoenix was aimed at specific niches such as the luxury market, in spite of a record 17 percent vacancy rate. This, coupled with limited market opportunities, suggests lower levels of multifamily construction for the rest of 1988.

No reasonable trend is discernible in current construction activity, which heightens concern about the future. Construction in Arizona has simply expanded faster than the economy or the population. This fact combined with higher mortgage interest rates will not encourage growth. Until a more positive environment returns, construction is not likely to increase beyond the second quarter 1988 levels.

On the other hand, nothing currently on the horizon, such as a recession, threatens to drive down construction activity. Because the long-term outlook for Arizona is promising, developers will continue to start major projects in anticipation of expected market growth. Further, as they recognize the potential of non-urban Arizona, increased multifamily and retail construction activity in these areas should follow.

While the 1988 pace continues below that of 1987, 1988 will end as a good year — albeit not a strong one — for Arizona's construction industry. However, activity will probably remain slow and uneven as developers examine the market throughout Arizona.

– Jay Q. Butler

Dr. Butler is Associate Professor of Real Estate and Director of the Arizona Real Estate Center in the ASU College of Business.

TABLE 4
ARIZONA BUILDING PERMITS
Second Quarter 1988

	Residential*		Commercial		Industrial		Other		Total	
	Number of Permits	*Dollar Value (000)*	*Number of Permits*	*Dollar Value (000)*	*Number of Permits*	*Dollar Value (000)*	*Number of Permits*	*Dollar Value (000)*	*Number of Permits*	*Dollar Value (000)*
APACHE COUNTY	56	1,801	1	75	0	0	4	46	60	1,922
Percent Change, Previous Year	–41	–44	–75	–65	—	—	–50	–28	–43	–45
Percent Change, Previous Qtr.	132	207	–80	–58	—	—	300	142	103	145
COCHISE COUNTY	230	6,158	28	3,694	0	0	176	506	432	10,358
Percent Change, Previous Year	–51	–41	24	143	—	—	–37	–18	–44	–17
Percent Change, Previous Qtr.	–7	12	117	108	—	—	4	17	0	34
COCONINO COUNTY	513	21,287	51	6,750	1	18	177	1,156	742	29,211
Percent Change, Previous Year	–6	7	–48	–55	–75	–96	6	93	–8	–20
Percent Change, Previous Qtr.	68	101	56	64	–50	–96	54	–10	63	73
GILA COUNTY	249	6,202	16	805	2	157	63	640	330	7,804
Percent Change, Previous Year	–2	6	–6	43	—	—	–11	–83	–4	–23
Percent Change, Previous Qtr.	32	20	0	–60	—	—	91	68	36	3
GRAHAM COUNTY	152	2,168	3	182	0	0	15	196	170	2,546
Percent Change, Previous Year	30	22	–79	–53	—	—	–52	–40	4	2
Percent Change, Previous Qtr.	27	1	–67	264	—	—	–12	195	16	12
GREENLEE COUNTY	0	0	0	0	0	0	0	0	0	0
Percent Change, Previous Year	—	—	—	—	—	—	—	—	—	—
Percent Change, Previous Qtr.	—	—	—	—	—	—	—	—	—	—
LA PAZ COUNTY	89	980	6	92	0	0	24	97	119	1,169
Percent Change, Previous Year	51	108	20	–88	—	—	60	60	45	–17
Percent Change, Previous Qtr.	–18	–34	20	–21	—	—	–47	47	–25	–30
MARICOPA COUNTY	6,817	430,738	762	376,984	32	14,573	5,910	211,604	13,521	1,042,899
Percent Change, Previous Year	–14	–10	20	7	–56	–62	–21	8	–16	–4
Percent Change, Previous Qtr.	10	18	82	120	–22	–10	6	30	10	44
MOHAVE COUNTY	1,053	29,818	44	7,099	2	52	423	2,846	1,522	39,815
Percent Change, Previous Year	17	30	2	–16	–60	–84	5	–15	13	14
Percent Change, Previous Qtr.	1	16	42	174	100	–29	25	–23	3	24
NAVAJO COUNTY	344	7,697	19	3,496	2	698	52	224	417	12,115
Percent Change, Previous Year	8	–29	171	667	100	3,778	0	–16	10	8
Percent Change, Previous Qtr.	64	84	36	298	100	—	–4	155	70	134
PIMA COUNTY	1,948	75,394	65	22,814	10	5,736	1,328	33,100	3,351	137,046
Percent Change, Previous Year	5	–4	–21	–30	–29	107	–16	–11	–5	–9
Percent Change, Previous Qtr.	29	20	–42	–48	233	855	16	7	20	0
PINAL COUNTY	291	8,308	36	10,075	9	838	166	3,570	492	22,989
Percent Change, Previous Year	–12	–12	–10	41	800	500	92	–34	1	3
Percent Change, Previous Qtr.	–17	–5	–27	–16	—	—	–4	138	–12	2
SANTA CRUZ COUNTY	39	1,757	8	332	0	0	5	6	52	2,095
Percent Change, Previous Year	–73	–79	300	1,177	—	—	–72	–95	–69	–76
Percent Change, Previous Qtr.	–73	–16	167	52	—	—	–44	–93	–67	–12
YAVAPAI COUNTY	876	33,764	41	8,433	4	527	281	11,523	1,202	54,247
Percent Change, Previous Year	13	12	–29	46	100	221	10	304	10	40
Percent Change, Previous Qtr.	31	44	–16	86	0	–93	31	273	20	42
YUMA COUNTY	282	8,694	23	5,716	2	152	216	3,227	523	17,789
Percent Change, Previous Year	60	63	–12	14	0	–6	35	–63	44	–33
Percent Change, Previous Qtr.	–26	–15	5	164	–50	–96	–8	97	–16	2
TOTAL, ARIZONA	12,911	643,462	1,104	446,549	64	22,753	8,847	268,770	22,926	1,381,534
Percent Change, Previous Year	–7	–8	5	4	–40	–55	–17	1	–11	–4
Percent Change, Previous Qtr.	12	20	27	83	14	–19	9	31	12	36

*Includes mobile homes

Note: A dash indicates that a percent change could not be calculated because at least one period had no activity.

Source: Center for Business Research, College of Business, Arizona State University.

Arizona's Fast Economic Growth Is Misleading

Arizona's economic growth was third fastest in the nation between 1970 and 1986. Its 5.6 percent annual average gain in Gross State Product (GSP) more than doubled the national average of 2.7 percent.

The state's growth, however, has been highly cyclical. In each expansion since 1970, Arizona has led the nation in economic growth in at least one year. During recessions, however, Arizona suffers more than the national average; for example, its percent change in GSP ranked 42nd in 1975 and 43rd in 1982.

Further, after adjusting for population growth, Arizona's economic growth no longer is spectacular. Its 1.7 percent per capita annual average GSP advance ranked Arizona 30th, near the national average of 1.6 percent.

This article analyzes 1963-86 GSP data produced by the U.S. Department of Commerce, Bureau of Economic Analysis. The article beginning on p.12 describes this data and how it varies from the Center for Business Research's GSP estimate.

1986 GSP

Arizona's 1986 GSP of $53 billion accounted for 1.2 percent of the national total. The four largest states —California, New York, Texas and Illinois—were responsible for one-third of the nation's total.

Adjusting for population, per capita GSP was highest in the District of Columbia and Alaska, more than twice the national average of $17,386. Wyoming, Connecticut, New Jersey and New York also ranked high. Arizona's figure of $16,241 was just 93 percent that of the national average. States in the South had the lowest per capita GSPs, with Mississippi's value only 70 percent of the national average.

1970-86 REAL GROWTH

Alaska and New Hampshire were the only states to exceed Arizona's growth between 1970 and 1986 (see Table 1). Except for Louisiana, which had the slowest growth, the other poor performers were states in the Northeast and Mideast.

Between 1980 and 1986, Arizona ranked seventh, as the recessions of 1980 and 1981-82 adversely affected the state. New Hampshire led 1980s growth by a wide margin, with Georgia, Massachusetts, Vermont, Connecticut and Florida all exceeding Arizona's pace. Except Arizona, each of the top 15 states are from the East.

During the 1980s, the GSP of four states declined (Wyoming, Louisiana, Montana and West Virginia). Most of the other slowly growing states are west of the Mississippi River.

Thus, economic fortunes swung dramatically from the 1970s to the 1980s. The West generally outperformed the East in the 1970s, but the opposite was true in the 1980s. Though population growth did increase in the East in the 1980s because of reduced out-migration, the strong economies were not a function of rapid population gains.

Real per capita GSP growth, even over the 1970-86 period, generally was greatest in the New England states and a few of the southeastern states. New Hampshire easily had the fastest per capita growth at 3.8 percent per year, followed by Massachusetts at 2.8 percent. The slowest growing states largely are located in the West. Wyoming and Louisiana were the only states to experience declines in real per capita GSP, but growth was slow in Hawaii, Oklahoma, West Virginia, Nevada and New Mexico.

The only years since 1963 when at least one state did not experience a declining GSP were 1965, 1978 and 1984. Declines affected at least one-half of the states in 1970, 1974-75, 1980 and 1982. Arizona's gains were below average in 1964-65, 1975-76 and 1981-82. It did particularly poorly in the mid-1960s, ranking 48th in 1965 (see Figure I). Conditions then—declining construction industry and weak overall economy in Arizona at the same time that construction and the entire economy were expanding nationally—were much like those of today. Arizona's growth in 1988 probably will be below the national average.

Except during recessions, Arizona and Florida have been among the fastest growing states since the 1960s. Other states have not shown such a consistent pattern. Among Arizona's neighbors, Colorado and New Mexico have experienced slower than average growth since 1982, each affected by the oil industry's troubles. After booming in the late 1970s, Nevada's growth barely has kept up with the national average in the 1980s. California's economic growth since 1982 has been greater than in the expansions of the 1970s.

INDUSTRIAL SIZE AND GROWTH

Both sectoral shares and growth vary widely by state. A summary by major industry of 1986 shares and 1970-86 growth follows.

Agriculture

Nationally, this industry accounted for only 2.2 percent of gross product; in Arizona the share was similar. States in the Northeast had the smallest shares, while those in the northern Great Plains had the highest shares, led by South Dakota at 15.9 percent.

TABLE 1
REAL GROWTH IN GROSS STATE PRODUCT
Annual Average 1970-86

Fastest Growing	Total	Per Capita	Slowest Growing	Total	Per Capita
1. Alaska	6.4%	2.8%	51. Louisiana	0.6%	-0.7%
2. New Hampshire	5.9	3.8	50. District of Columbia	1.0	2.0
3. Arizona	5.6	1.7	49. West Virginia	1.2	0.6
4. Florida	5.0	1.7	48. Pennsylvania	1.3	1.3
5. Nevada	5.0	0.7	47. New York	1.5	1.6
6. Georgia	4.6	2.8	46. Illinois	1.5	1.3
7. Colorado	4.5	2.0	45. Ohio	1.6	1.6
26. Massachusetts	2.9	2.8	41. Wyoming	2.0	-0.7
27. Connecticut	2.9	2.6	37. Hawaii	2.3	0.3
10. Tennessee	3.9	2.6	40. Oklahoma	2.0	0.4
United States	2.7	1.6			

Source: Center for Business Research, College of Business, Arizona State University from U.S. Department of Commerce, Bureau of Economic Analysis data.

The industry's average annual growth of 2.1 percent was slower than that of the overall economy (2.7 percent). Though Arizona's 3.4 percent growth exceeded the national average, agriculture was only one of two industries in which Arizona did not rank among the top six states.

Mining

In most states, the share of economic activity contributed by mining was less than the national average of 2.3 percent; Arizona ranked 18th with only a 1.3 percent share. Mining is concentrated in a few states in which it accounts for more than 10 percent of GSP, led by Alaska at 33.4 percent and Wyoming at 26.4 percent, followed by Louisiana, New Mexico, West Virginia, Oklahoma and Texas. Several states have almost no mining output.

The industry's-GSP declined in Arizona 1.3 percent per year, the same as the national average. Several states, however, experienced rapid growth in their mining industry; Alaska led with 8.5 percent per year.

Construction

Arizona's construction industry was responsible for 10 percent of its GSP, a share exceeded only in Alaska and Wyoming. The national figure was just 4.7 percent, with slowly growing states in the East and Mideast having the smallest shares.

Nationally, construction's growth in gross product was zero between 1970 and 1986. Arizona's construction industry, however, expanded an average of 4.8 percent per year; only three other states grew faster.

Manufacturing

Huge variation exists in the size of the manufacturing industry by state. After North Carolina, in which manufacturing has a 31.4 percent share, the most manufacturing-dependent states are around the Great Lakes. Though Arizona's 13.5 percent share contributed by manufacturing was well below the nation's 19.5 percent average, 12 states—mostly in the West—had even smaller portions, with Wyoming the lowest at 2.8 percent.

Manufacturing's growth nationally was 3.0 percent between 1970 and 1986. Arizona's 7.6 percent growth ranked third behind New Mexico and New Hampshire.

TCPU

The range in sectoral shares contributed by the transportation, communication and public utilities sector is narrow. Arizona's 8.7 percent share was near the national average of 9.2 percent. Most of the high ranking states were in the Rocky Mountains or Great Plains; the lowest ranked states were generally in New England.

Nationally, the TCPU industry's growth averaged 3.0 percent. Its gross product did not decline in any state; the most rapid growth occurred in Alaska (7.2 percent) and the Rocky Mountain states of Colorado, Utah and Arizona.

Wholesale Trade

Arizona's 5.3 percent share was slightly less than the national average. No regional pattern was apparent; Georgia had the largest share (9.6 percent) and Alaska the lowest (2.5 percent).

New Hampshire's wholesale trade industry was the fastest growing at 8.1 percent; Arizona ranked fifth at 6.2 percent.

Retail Trade

The national average was slightly less than Arizona's 11.5 percent, which was tied for second largest. Little range was apparent, with nearly all states exceeding 8 percent shares.

Arizona's 6.1 percent average growth was second behind Alaska. Some of the Great Plains states experienced the slowest gains.

FIRE

Arizona's finance, insurance and real estate industry's contribution to gross product was nearly equivalent to the national average of 16.4 percent. Most of the leading states were in the Northeast, with New York at 22.2 percent. Southern states were the lowest after Alaska's 9.2 percent.

Alaska and New Hampshire had the fastest growth in the FIRE industry. Arizona's 5.6 percent rate placed sixth, above the national average of 3.4 percent.

Services

Nevada's economy is much more highly geared to services than that of any other state. Services contribute 36 percent of Nevada's GSP, compared to second-ranked Massachusetts' 22 percent portion. Arizona's share again was near the national average of 16.5 percent.

Growth in Arizona's services industry was second fastest at 6.9 percent per year, behind Alaska. Nationally, the industry expanded an average of 4.7 percent per year, the fastest of the major industries.

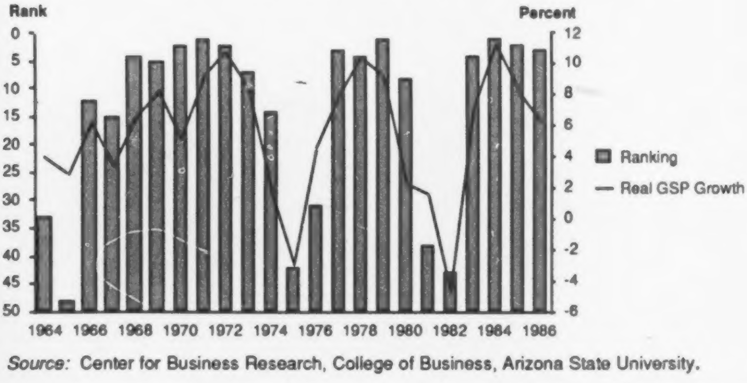
Government

Other than the District of Columbia, Hawaii's share was the greatest at 24 percent. Arizona ranked 13th at 13.9 percent, above the 12 percent national average.

Arizona's government sector easily was the fastest growing in the nation between 1970 and 1986. Its 4.1 percent annual rate greatly exceeded the national average of 1.1 percent. Wyoming was the only other state to have growth of at least 3 percent.

– Tom R. Rex
Research Manager

FIGURE I
ARIZONA GROSS STATE PRODUCT
RANKING AND ANNUAL GROWTH RATE



Source: Center for Business Research, College of Business, Arizona State University.

New GSP Measure Released by Federal Government

The U.S. Department of Commerce, Bureau of Economic Analysis (BEA) recently released a new measure of Gross State Product (GSP) which likely is the best gauge available of a state's annual economic growth by industry. The BEA's estimate of GSP is similar to that produced by the Center for Business Research (CBR), but uses data not available to the CBR to more directly and accurately measure economic performance.

GSP, defined as the gross market value of goods and services attributable to labor and property located in a state, is the most comprehensive economic measure available by state. It is similar to the Gross National Product (GNP), or more accurately, to the nation's gross domestic product.

The BEA calculates GSP by totaling four components: (1) compensation of employees, which represents roughly 60 percent of Arizona's gross product; (2) proprietors' income (approximately 10 percent); (3) indirect business taxes—liabilities charged to business operations (just more than 20 percent); and (4) capital charges, including profit rates (less than 10 percent). The first two components roughly equate to earnings by industry, the primary data used by the CBR in its calculation. The last two components, however, have to be approximated by the traditional GSP methodology and therefore cannot take into account state differences in tax structures and rates and in capital stocks and rates of return.

The BEA data has the additional advantage of being reported by subsector. However, it is available only annually, through 1986. It may not be updated until 1990.

INDUSTRIAL GROWTH

Industries that provide at least 0.5 percent of the state's current dollar gross product, as measured by the BEA, are shown in Table 1 with their growth rates. The state's annual average rate of 5.6 percent was about twice that of GNP over the 1970-86 period. Average growth

TABLE 1
ANNUAL AVERAGE GROWTH RATES IN REAL GSP

	1980-86	1970-86	1986 Sectoral Share
TOTAL	4.8%	5.6%	100.0%
AGRICULTURE	2.0	3.4	2.1
Farming	0.7	2.7	1.5
Agricultural Services	6.8	6.1	0.6
MINING	–2.0	–1.1	1.3
Metals	–4.3	–2.0	0.9
Other	4.8	2.3	0.4
CONSTRUCTION	4.4	4.8	10.0
MANUFACTURING	6.6	7.6	13.5
Durables	7.0	7.7	10.9
Stone, Clay, Glass Products	5.1	7.5	0.7
Primary Metal Industries	–2.8	3.1	0.9
Fabricated Metals	3.6	4.4	0.6
Machinery, except Electrical	9.0	9.6	1.9
Electric and Electronic Equipment	8.1	8.9	2.6
Transportation Equipment	8.3	7.5	2.5
Instruments	10.4	9.7	0.8
Other	10.5	7.4	0.9
Non-durables	4.4	6.9	2.6
Food	1.5	5.0	0.6
Printing and Publishing	4.8	5.9	0.9
Other	5.8	9.1	1.1
TCPU	2.9	5.6	8.7
Transportation	3.3	4.3	2.5
Trucking and Warehousing	4.3	6.1	1.0
Air	3.8	6.0	0.7
Other	1.5	1.5	0.8
Communication	3.7	6.9	2.6
Public Utilities	2.0	5.8	3.6
TRADE	6.5	6.2	16.8
Wholesale	7.0	6.2	5.3
Retail	6.2	6.1	11.5
FIRE	3.8	5.3	16.7
Banking	3.9	4.6	1.3
Credit Agencies	17.2	10.6	0.5
Investment Services	15.3	11.3	0.8
Insurance Carriers	7.3	7.1	1.1
Insurance Agents	5.1	5.5	0.8
Real Estate	2.9	5.4	12.5
SERVICES	6.7	6.9	17.0
Hotels and Lodging	0.4	3.1	1.2
Personal Services	3.8	3.3	0.8
Business Services	11.3	10.4	4.0
Auto Repair	6.7	7.1	1.0
Health Services	7.3	7.2	4.8
Legal Services	6.9	6.3	1.2
Social Services	2.4	6.6	1.1
Miscellaneous Professional	6.1	8.2	1.6
Other	6.1	4.4	1.4
GOVERNMENT	3.2	4.2	13.9
Federal Civilian	1.3	2.4	2.5
Military	0.9	0.4	1.6
State and Local	4.3	5.8	9.8

Source: Calculations by the Center for Business Research, College of Business, Arizona State University from U.S. Department of Commerce, Bureau of Economic Analysis data.

TABLE 2
GROSS STATE PRODUCT COMPARISONS, 1986

	Current Dollars*				Real 1982 Dollars*			
			Difference				*Difference*	
	CBR	*BEA*	*$*	*%*	*CBR*	*BEA*	*$*	*%*
TOTAL	$52,455	$53,253	−798	−1.5	$46,030	$46,058	−28	−0.0
Agriculture	1,230	1,121	109	9.7	1,336	1,192	144	12.1
Mining	1,342	683	683	96.5	1,581	679	902	132.8
Construction	3,859	5,330	−1,471	−27.6	3,454	4,532	−1,078	−23.8
Manufacturing	7,976	7,172	804	11.2	7,939	7,412	527	7.1
TCPU**	4,155	4,646	−491	−10.6	3,782	3,841	−59	−1.5
Trade	8,903	8,933	−30	−0.3	8,277	8,132	145	1.8
FIRE***	9,261	8,909	352	4.0	7,050	7,080	−30	−0.4
Services	8,799	9,045	−246	−2.7	7,011	7,287	−276	−3.8
Government	6,932	7,413	−481	−6.5	5,600	5,904	−304	−5.1

*Millions of dollars
**Transportation, Communications, Public Utilities
***Finance, Insurance and Real Estate

Source: Center for Business Research, College of Business, Arizona State University and U.S. Department of Commerce, Bureau of Economic Analysis.

during the 1980s was slower because of the two recessions in the early 1980s.

The manufacturing industry grew the most rapidly of the nine major industries between 1970 and 1986, but its fastest growth occurred in the 1970s, a continuation of the industry's rapid entrance into the Arizona economy. In the 1980s, manufacturing's growth rate was about equal to that of services and trade.

Other than mining, whose gross product declined between 1980 and 1986, the slowest growing industries were agriculture and government. The gross products of TCPU (transportation, communication and public utilities) and FIRE (finance, insurance and real estate) both declined sharply during 1980-82, lowering their average growth rate of the 1980s well below that of the 1970s.

Weak expansion in the production of the farming subsector is the cause of agriculture's slow growth; the gross product of agricultural services expanded slightly more than the overall average. Likewise, poor performance in metal mining—mostly copper— is responsible for the mining industry's decline. In the government sector, the federal civilian and military subsectors barely have grown, but state and local government has expanded at about the average rate of the entire economy.

TABLE 3
SECTORAL SHARE COMPARISONS, 1986
Current Dollars

	CBR	BEA	Difference
Agriculture	2.3%	2.1%	0.2%
Mining	2.6	1.3	1.3
Construction	7.4	10.0	−2.6
Manufacturing	15.2	13.5	1.7
TCPU*	7.9	8.7	−0.8
Trade	17.0	16.8	0.2
FIRE**	17.7	16.7	1.0
Services	16.8	17.0	−0.2
Government	13.2	13.9	−0.7

*Transportation, Communications, Public Utilities
**Finance, Insurance and Real Estate

TABLE 4
GSP GROWTH RATE COMPARISONS
1970-86 Annual Average, Real Dollars

	CBR	BEA	Difference
TOTAL	5.7%	5.6%	0.1%
ADJUSTED TOTAL*	5.7	5.9	−0.2
Agriculture	4.5	3.4	1.1
Mining	4.5	−1.1	5.6
Construction	4.9	4.8	0.1
Manufacturing	6.4	7.6	−1.2
TCPU**	6.1	5.6	0.5
Trade	6.3	6.2	0.1
FIRE***	5.9	5.3	0.6
Services	6.6	6.9	−0.3
Government	3.5	4.2	−0.7

*Excludes the mining and agriculture industries.
**Transportation, Communications, Public Utilities
***Finance, Insurance and Real Estate

Sources (Tables 3 and 4): Calculations by the Center for Business Research, College of Business, Arizona State University from U.S. Department of Commerce, Bureau of Economic Analysis data.

Within the FIRE industry, both banking and real estate have grown slower than the overall average pace. In the TCPU sector, transportation expanded at a below average rate while growth in both communication and public utilities decelerated greatly in the 1980s.

Not all of the manufacturing subsectors expanded rapidly. While the high technology industries such as instruments and electronic equipment grew at rapid rates, the metals industries—related to mining—struggled. Similarly, not all of the services subsectors shared in the industry's strong performance. In particular, the tourism industry of hotels and other lodging places experienced little growth in the 1980s.

COMPARISON OF MEASURES

The GSP estimates produced by the CBR are compared to those of the BEA in Table 2. Both in current and real dollars, total GSP is not much different in the two series, but sizeable disagreements are apparent by industry, particularly in mining and construction. The differences are large enough to cause noticeable variances in sectoral shares (see Table 3). The CBR overestimates the size of the mining, manufacturing and FIRE industries, but substantially understates the construction sector.

These size disparities between the series largely have existed since the 1960s, when the GSP measures begin, so the annual average growth rates are not much different except in the mining industry. Annual average growth rates nearly agree for overall GSP, adjusted GSP, construction, trade and services. (See Table 4).

Deviations in growth rates may be somewhat greater for any particular year, but usually are offset within one or two years in total GSP and rarely exceed 1.5 percentage points. By industry, the annual growth rate can vary more widely, though very large differences are common only in the mining and agriculture industries.

The most important use of GSP is to measure overall economic growth. On this basis, the CBR's annual estimate is reasonably accurate, particularly after the first round of data revisions has been completed.

EXTENSION TO GCP

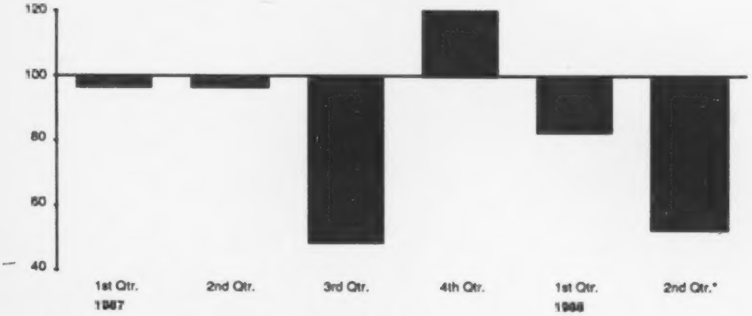
Since the BEA has not calculated gross products by county, an evaluation of the Gross County Products (GCP) presented in the September 1988 issue of *Arizona Business* is not possible. However, some general conclusions can safely be made. First, total GCP growth of counties with a large mining industry probably are overstated; this seems particularly likely in Greenlee and Navajo Counties. To a lesser extent, economic growth of counties with a relatively large agriculture industry probably are overstated as well. Second, annual and sectoral growth estimates are likely to be less accurate in the smaller counties. Over time, however, these errors generally offset.

– Tom R. Rex
Research Manager

New Business Start-Ups Continue to Slide in 1st Quarter 1988

The number of new businesses started by metropolitan Phoenix entrepreneurs declined slightly during first quarter 1988, compared to fourth quarter 1987. The quarterly Metro Phoenix New Business Index fell to 82.4 (1986=100) due to a drop in new businesses to 869 during the first quarter of 1988 from 1004 during the fourth quarter of 1987. The index measures new business start-ups, excluding franchises, branches, and relocations. Data are obtained through a cooperative agreement between the Arizona New Business Review and the Center for Business Research.

FIGURE I
METROPOLITAN PHOENIX NEW BUSINESS INDEX
(1986 = 100)



*Preliminary estimate, based on incomplete data

Source: Arizona New Business Review and the Center for Business Research, College of Business, Arizona State University.

The number of new start-ups was also down compared to the first quarter of 1987, when 1,013 new firms began business. During 1987, 3,329 new firms were started in the metropolitan area.

Especially large decreases in the number of new start-ups occurred in Finance, Insurance, and Real Estate, down 37 percent from the previous year. The only sector in which start-up activity increased compared to a year ago was construction, up 9 percent.

Preliminary figures for second quarter 1988 show an even greater decrease in new business starts, dropping the index below 60. (Final figures will be available in January.)

– Yolanda Strozler
Research Analyst
Economic Outlook Center

Coincident Indexes Measure Additional Weakness in June

For the third consecutive month, economic activity stumbled in June in most of Arizona. The second quarter was the weakest period for the Arizona economy since the end of the last recession in 1982.

Despite an increase in June, Pima County's coincident index declined 1.0 percent during the second quarter. The non-urban economy fell even further (1.3 percent) while the index for Maricopa County rose only 0.1 percent during the three months.

In June, the coincident economic index for the Phoenix metropolitan area decreased 0.3 percent to 148.1 (1982 = 100). The index for the Tucson area rose 0.4 percent to 137.6 while the index for non-urban Arizona held steady at 129.5.

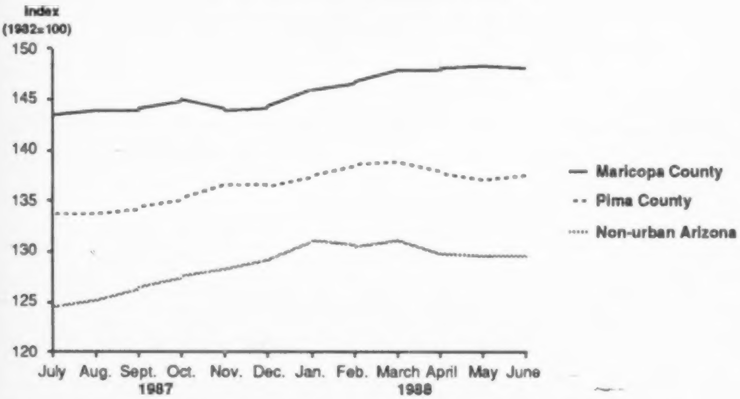
Employment losses occurred throughout the state in June, with the level falling to the lowest point since September 1987 in Pima County and rural Arizona. Unemployment was flat in Maricopa County but improved elsewhere, partially offsetting May's rise in the unemployment rate.

Pima County's index advanced primarily because of gains in retail sales and commercial building permit valuations. Elsewhere, retail sales were flat and permit values declined.

While improving economic conditions are likely later in 1988, economic performance probably will not exceed the subpar level that prevailed prior to the second quarter. No improvement was apparent in preliminary data for July, which indicates economic activity probably declined throughout the state, particularly in rural Arizona.

– Tom R. Rex
Research Manager

FIGURE I
COINCIDENT ECONOMIC INDEXES



Source: Center for Business Research, College of Business, Arizona State University.

Purchasing Indicators Turn Upbeat in August

The Arizona economy continued to enjoy strong economic growth as new orders, production, and employment each turned in an upbeat performance in August.

As the economy moves through year six of the expansion which began in January of 1983, it still has good underlying strength and is likely to stay that way over the balance of the year and into 1989, fueled by robust demand, capital investment, and exports. However, the Federal Reserve seems determined to defuse inflation by pushing interest rates up, and that action, coupled with tightened labor and resource markets, will begin to cut into the growth rate as we move into the fourth quarter.

New orders received from customers jumped up sharply in August, as the trend in order bookings continued its pronounced upward movement. The new order rate has registered consistently strong performance each month this year, as consumer and industrial demand shows no sign of softening.

Production was raised in August to keep pace with the increase in new orders.

Employment grew at a higher rate than in both June and July, its 20th consecutive monthly increase. As Arizona employers continue to add new employees, the tighter labor market will add further fuel to the inflation rate.

– Harold Fearon

Dr. Fearon is the National Association of Purchasing Management Professor in the ASU College of Business.

TABLE 1
AUGUST PURCHASING SURVEY

Key Indicators	Percent of Purchasing Managers Indicating Each Response (August compared to July) *Higher*	*Same*	*Lower*
Prices paid for major commodities	53	44	3
Delivery time from vendors	35	58	7
Purchased materials inventory level	26	49	25
New orders received	42	35	23
Production	38	43	19
Employment	28	59	13
Purchases	42	34	24

Source: Purchasing Management Association of Arizona, Purchasing Management Association of Southern Arizona, and the Northern Arizona Group.

ARIZONA ECONOMIC INDICATORS

					Year-to-Date	
	Month or Quarter	*Value*	*Percent Change from Previous Period*	*Percent Change from Year Ago*	*Value*	*Percent Change from Year Ago*
GROSS STATE PRODUCT						
(In Billions of Dollars, at Annual Rate)						
Arizona - Current Dollars	1st Qtr.	59.443	2.0	9.0	NA	NA
Arizona - 1982 Dollars	1st Qtr.	49.003	1.5	4.5	NA	NA
COINCIDENT ECONOMIC INDEXES						
(1982 = 100)						
Arizona	June	143.0	–0.1	3.9	NA	NA
Metropolitan Phoenix	June	146.1	–0.2	4.3	NA	NA
Metropolitan Tucson	June	137.5	0.4	2.7	NA	NA
Non-urban Arizona	June	129.5	0.0	4.4	NA	NA
CONSUMER PRICE INDEX (1982-84 = 100)						
Metropolitan Phoenix	2nd Qtr.	119.9	2.1	3.8	NA	NA
INDEX OF LEADING ECONOMIC INDICATORS (1977 = 100)						
Arizona	July	111.1	0.2	0.5	NA	NA
BUILDING PERMITS						
(Total Dollar Value in Thousands)						
Maricopa County	June	316,319	–15	0	1,766,085	–10
Pima County	June	52,741	31	12	273,673	–12
Balance of State	June	73,589	–2	–22	355,613	4
Arizona	June	442,649	–9	–3	2,395,371	–9
TOTAL HOUSING UNITS AUTHORIZED						
Maricopa County	June	2,688	33	32	12,310	–15
Pima County	June	637	95	48	3,307	–9
Balance of State	June	949	2	–36	5,056	–10
Arizona	June	4,274	31	8	20,673	–13
HOME SALES						
Maricopa County - Number	July	4,750	9	–26	24,550	–17
Maricopa County - Median Price	July	80,650	0	0	79,860	0.7
HOUSING AFFORDABILITY INDEXES						
Metropolitan Phoenix - New Homes	2nd Qtr.	96	5.5	1.1	NA	NA
Metropolitan Phoenix - Resale Homes	2nd Qtr.	124	0.8	6.9	NA	NA
MORTGAGE INTEREST RATES						
(Conventional, 30-year, Fixed-rate)						
Maricopa County	August	10.7	2.9	3.9	NA	NA
POPULATION ESTIMATES						
(In Thousands)						
Maricopa County	2nd Qtr.	2,013	0.3	2.2	NA	NA
Arizona	2nd Qtr.	3,476	0.3	2.1	NA	NA
ELECTRICAL POWER SALES						
(In Millions of Kilowatt Hours)						
Arizona	July	4,768	13.5	20.8	24,853	10.8

NA = Not Applicable

Source: Center for Business Research, College of Business, Arizona State University.

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